

Possibilities Of 'Death Ray' Lamp Shown By Results Of Applications In Many Fields

BLOOMFIELD, N. J.—Indications of the widespread effect that the Sterilamp, "death ray" for air-borne germs developed by Dr. Harvey C. Rentschler and Robert F. James of the Westinghouse lamp research laboratories here, may have on the refrigeration and air-conditioning industries, as well as on innumerable other fields, are revealed in results of tests which have been made in various parts of the country.

The Rentschler-James Process was described to more than 1,000 public health authorities, physicians, and scientists at a meeting of the American Institute of the City of New York in Engineers Hall, New York City, March 7. (See AIR CONDITIONING & REFRIGERATION NEWS, March 9.)

Experiments with the process began when Dr. James, then working in the laboratories of Detroit Edison Co., decided to make a lamp to banish the mustiness of the refrigerator in his apartment.

First of all, the lamp would have to operate at a low temperature in order to be used inside the refrigerator. This requirement ruled out ordinary hot filaments used in house lamps. He resorted to a lamp using a glow discharge in place of a filament.

By using low-temperature mercury vapor and such inert gases as argon and neon, he built a lamp that remained relatively cool and soon banished the odors in the refrigerator.

"My superior in the laboratory decided he would see just how good my lamp was," he related, "so he brought a moldy duck to the office. This duck had been shot on the east coast and was well spoiled when it arrived, covered with mold. I put it under the lamp, and 24 hours later was much surprised to find the mold dried up so that it could be blown off. Well, we had that duck for dinner, and it was good."

Sterilamps are now being tested in various parts of the country to see what they will do, under many special conditions. There are many experimental installations in hospitals, drug stores, soda fountains, restaurants, dairies, manufacturing plants, and elsewhere. The vast variety of fields in which the Sterilamp eventually may be applied appears to be virtually limitless.

For example, today one of the best known cosmetics manufacturers in the country is regularly using the Rentschler-James Process to irradiate toothpaste and cleansing creams; which is in marked contrast to a bank in New York state that has a Sterilamp installed over each teller's window, to reduce the hazard of communicating the common cold cirrus and other disease breeders.

In a few of these fields the results have been so complete, and so spectacular, that Dr. Rentschler and Dr. James believe they are justified in revealing the information.

STERILIZING AIR

That the Rentschler-James Process is applicable to the atmosphere itself has been demonstrated by several manufacturers who effectively installed Sterilamps in the air ducts of their ventilating and conditioning systems. Tests indicated that an exposure of 1.2 seconds killed 90% of the bacteria in the air. Air in a particular location was kept sterile by installing lamps over that spot and flooding it with constant radiation.

PRESERVATION OF MEAT

The average retail meat dealer sells from 500 to 1,500 lbs. of meat per week. He buys from the wholesale packing house once or twice a week, depending upon his turnover

and his proximity to the source of supply. In every case he is faced with the problem of preserving the balance of his stock. This is usually accomplished by storing it in a walk-in type of refrigerator which may be cooled by ice or by electric refrigeration.

The average temperature of ice-cooled boxes ranges from 45 to 50° F., with relative humidities of 70 to 80%, while the temperature of boxes cooled by electric refrigeration ranges from 32 to 38° F., with relative humidities of 60 to 70%.

High temperature and high humidity conditions tend to favor the development of mold and slime, which are responsible for the loss of thousands of dollars annually in meat and meat products. Low-temperature conditions are likewise unfavorable, due to the fact that the moisture in the air is frozen out and collects as frost on the cooling coils.

With the advent of the Sterilamp and its ability to kill mold and bacteria, studies were made of its applicability to meat storage refrigerators. From these studies of experimental and commercial installations it was noted, that since bacteria and mold are killed by the Sterilamp, low-temperature storage becomes unnecessary. It is necessary only to chill the meat enough to prevent flabbiness and render it firm enough to be cut readily and neatly.

Among other advantages of the Sterilamp for preserving meat may be listed: Reduction of dehydration loss from 6% to 1% of meat purchases; reduction of trimming loss from 10% to less than 5%; improved appearance of meat; improved odor of meat and refrigerator; elimination of necessity to freshen meat by rinsing with bicarbonate of soda.

Sterilamps in display cases have the same beneficial effects as in refrigerators. The temperature of the case may be raised as high as 50° F. from the usual operating temperature of 38° to 40° F., which will materially reduce the refrigeration operating costs. High humidity will be maintained because of higher temperature.

FRESHER BREAD AND CAKE

In the baking industry, the Sterilamp has been put to practical use by several large companies, and it has been employed successfully on a test scale by a few smaller concerns.

Two large firms have been using the lamp to retard mold growth on fruit cakes. Before the lamps were installed, spoilage on the cakes amounted to about 15%. After exposure to the radiation and after certain changes had been made in the baking set-up, spoilage fell to a trifling 1 or 2%.

Previous to the installation of the Sterilamps in large baking plants, small-scale experimental work was done on the production lines in three smaller bakeries. One of these bakeries put the effectiveness of the radiation to severe tests with Englishtown muffins.

High in moisture content, this product spoils quickly, and the muffins have been sold for the most part

by retail bakers, who can deliver them direct to consumers. But after killing the mold spores on the surface of the muffins and on the wrapping material, the baker in question was able to send them out on cake trucks which delivered only three times a week. The procedure was to cool and package the muffins under the Sterilamp.

PURER FARM PRODUCTS

Most of the attempts at sterilization in connection with the preparation of farm products have been frustrated by obvious physical limitations. The problem here is really three-fold: sterilization of the product, sterilization of the container, and sterilization of the air itself.

Cows and barns can be scrubbed, milking pails and operators' hands can be washed; but heretofore there has been no satisfactory method of eliminating the air-borne bacteria that fall into the pail before raw milk can be bottled.

Believing that the Sterilamp would solve this most perplexing part of the problem, Dr. Rentschler tested some of them in his own cow barns in Berks County, Pa. Cultures made before operation of the lamps showed hundreds of colonies; many of them pathogenic; only one slide showed a single colony after radiation from lamps placed several feet above the milking pail.

Today the lamps are being used regularly on a number of farms, not only in connection with the milking operation, but in hen houses, brooder houses, and hog pens. One of the largest poultry farms in the United States recently installed the lamps to combat infection.

Full Day's Program Of Activity Is Outlined For 'National' Dealer Group's First Meeting

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Federation; Senator A. A. Feld, of New York, co-author of the Feld-Crawford fair trade act; M. A. Tarzian, of the Brooklyn association, and other speakers familiar with various phases of the subject.

Summary of the program and platform of the proposed organization will be made by Homer Davis, president of the Home Appliance Dealers Association, Newark, N. J.; Essex Electrical League, Newark, N. J.; Hamilton Electrical Appliance Association, Hamilton, Ohio; St. Louis Electrical Board of Trade; Electrical, Radio & Refrigeration Club, Richmond, Va.; The Outlet Co., Providence, R. I.; Cashwell Electric Co., Greensboro, N. C.

Committees on platform, by-laws, constitution and name, publicity, and nominations then will be appointed, after which a recess will be declared to permit these committees to meet and prepare their reports. The general meeting will reconvene after the recess to hear committee reports, and to consider adoption of the various measures agreed upon in committee sessions. Following this, permanent officers will be elected, and standing committees chosen. These will include finance, inter-relations, legislative, membership, and convention and entertainment.

Meeting will close with an informal banquet in the Commodore ballroom that evening, for which a nationally known speaker is being sought.

In addition to representatives of several dealer associations from the east and middle west, many individual dealers in cities where no associations have been formed have expressed their intention of attending

the meeting to ally themselves with this national movement, says Mr. Poucher.

Associations and dealers who will be represented at the meeting include:

Dowdy Electric Co., Roanoke, Va.; Electric Institute of Washington, D. C.; Utica & Mohawk Valley Radio & Appliance Association, Utica, N. Y.; General Electric Specialty Appliance Dealers Association, Newark, N. J.; Essex Electrical League, Newark, N. J.; Hamilton Electrical Appliance Association, Hamilton, Ohio; St. Louis Electrical Board of Trade; Electrical, Radio & Refrigeration Club, Richmond, Va.; The Outlet Co., Providence, R. I.; Cashwell Electric Co., Greensboro, N. C.

Electrical Trades Association, Wilmington, Del.; Cleveland (Ohio) Retail Appliance Dealers Association; Chicago Retail Furniture Association; Home Appliance Dealers Association of Philadelphia; Electrical Appliance Dealers Association of Brooklyn, Inc.

Radio-Electric Appliance League, Verona, N. J.; Edison Light & Power Co., York, Pa.; Beach Sales Co., East Hartford, Conn.; Radio & Electric Appliance League of Northern New Jersey; Electrical Appliance Dealers Association of Fort Wayne, Ind.; Hudson County, N. J.; Electric League of Pittsburgh; Irving Rubin, Haverstraw, N. Y.

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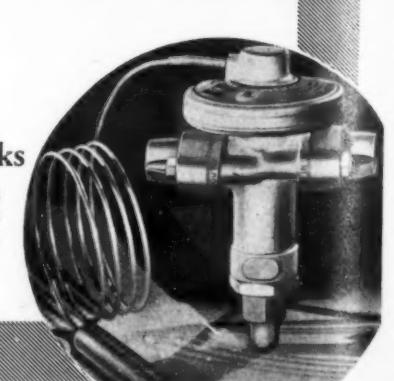
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MARCH DEMONSTRATION
News

Written to Be Read on Arrival

FOUR DOLLARS PER YEAR
TWENTY CENTS PER COPY**THE COLD CANVASS**

By B. T. Umor

The News As a Reducing Agent

Vice President Herbert Laube of Carrier Corp. received a distinct shock when he picked up his copy of AIR CONDITIONING & REFRIGERATION NEWS recently.

In it he saw a likeness of himself, as recorded for posterity by the editor's candid camera.

"My gosh!" he exclaimed. "Have I become that heavy?"

And forthwith he began to reduce. Now he is 17 pounds lighter, and feels great, thank you.

Don't Look Now

James A. Bentley, Carrier's senior vice president in charge of export business, is a hard man to pump.

"Every time you report that we have made an installation in a foreign land," he complains, "six competitors race for a boat."

And every time Mr. Bentley himself goes anywhere, he is prepared to hear his companions say:

"Don't look now, but I think we're being followed."

The 'Better Mousetrap' Gag Hits Home

There's a refrigeration salesman in Detroit who is nonplussed. He still hasn't recovered from an incident which occurred while he was doing his trick at his company's booth during the recent builders' show here.

The curiosity of this salesman was aroused by one certain woman who had been sticking pretty close to his booth for some time, but who had shied away every time that he had approached her. Finally, when not another soul was in sight, the mystery woman came to him and in a quiet, almost plaintive voice asked, "Please, sir, could you tell me how I can keep the mice out of my refrigerator?"

Somewhat taken aback, the salesman nonetheless recovered sufficiently to question the woman for further details. Her story, in brief, was this:

Sometime ago she had noticed that the supplies of cheese and sundry other edibles which she kept in her refrigerator began to diminish with inexplicable rapidity. Then one day she opened the refrigerator only to be shocked into a skirt-lifting panic.

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Directs Institute

CHARLES S. PEARCE

Pearce Secretary Of Porcelain Institute

CHICAGO—Charles S. Pearce, formerly assistant director of personnel for the Farm Security Administration, has been appointed secretary of Porcelain Enamel Institute, according to an announcement by Frank E. Hodek, Jr., Institute president.

Mr. Pearce left the Farm Security Administration to succeed Geo. P. MacKnight, who resigned recently.

From 1918 to 1920, Mr. Pearce was connected with the Weirton Steel Co., Weirton, W. Va., leaving to enter Ohio State university. After his graduation in 1924, he joined the Tennessee Furniture Corp., Chattanooga.

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Nema Commercial Sales Down, Conditioners Up

DETROIT—Although sales of commercial refrigeration equipment by manufacturer members of National Electrical Manufacturers Association to distributing outlets dropped approximately 23% in January compared to the same month last year, sales of self-contained air conditioners showed a rise of about 225% in the same period.

Commercial refrigeration shipments by Nema members in January dropped to 10,998 units, compared with 13,777 units in the same month a year ago. Self-contained air-conditioner shipments, however, rose from a reported 582 units in January, 1937, to a total of 1,303 units during the month this year.

Sales of self-contained conditioners

(Concluded on Page 2, Column 2)

Conditioning Engineers Simulating Conditions Of Jungle In a Cage To Save 'Gargantua The Great'

SARASOTA, Fla.—Air-conditioning engineers are engaged in a heated race against time, to produce the climate of the Belgian Congo and save the life of Gargantua the Great, largest gorilla ever brought to this country.

Gargantua is now in carefully protected winter quarters with Ringling Bros. circus at Sarasota. It has been found impossible, however, to exhibit gorillas successfully in temperate climates, because of changeable weather and the danger to the delicate beasts of succumbing to pneumonia or influenza caught from the coughs and sneezes of admiring throngs.

To whip this problem, the Ringling management has asked air-conditioning engineers to construct a glass-enclosed cage and furnish it with equipment to produce the same interior weather conditions as Gargantua experienced in his home jungle. Temperature and humidity

in the cage must be under constant control to simulate that of the Belgian Congo. The cage must be ready by the end of March, when the circus takes to the road.

Carrier Corp. engineers are now designing a cage large enough for the correct temperature, and small enough for mobility on the circus' long road trip. Also, the cage has to be strong enough to withstand the attacks of the ferocious, 550-lb. gorilla.

In perfecting and testing the system for the cage, Carrier engineers have built in their research laboratory an exact model of the cage that will be taken to Madison Square Garden, New York City, in April, and around the country this summer. All around this test cage is an enclosure in which are being reproduced all the kinds of heat, cold, humidity, and dust storms that will be encountered by the circus in its six months' travels.

C. G. Frantz Is Winner In Apex Presidency Fight**'Insurgents' Are Elected To Fill 3 Vacancies On Directors Board**

CLEVELAND, March 21—C. G. Frantz was reelected president and W. A. Frantz, R. H. Clarke, R. J. Strittmatter, and D. E. Morgan were elected to the board of directors of Apex Electrical Mfg. Co. at the company's annual meeting here today.

At the general meeting, W. A. Frantz, vice president; Mr. Clarke, former chairman of the board; Mr. Morgan, former city manager; and Mr. Strittmatter were elected by an "insurgent" stockholders group to fill three vacancies and displace G. B. Schuyler on the board of directors.

The new board then met and reelected C. G. Frantz as president of the company, and also reelected retiring officers. Chairmanship of the board will be considered at a later date.

These elections apparently end a drawn-out struggle for control of the

(Concluded on Page 2, Column 3)

Conditioning Ruled A 'Conservation Of Assets' By Court

NEW ORLEANS, March 19—Air conditioning was ruled a "conservation of assets" rather than a "speculative investment" in the first step of a recent court test—believed to be the first of its kind—of a \$488,069 contract recently given by the liquidators of the Canal Bank & Trust Co. here for remodeling the building.

John F. Finke, liquidator, and special agent H. G. Thompson won the first step in an action brought by two depositors, when Civil Judge Hugh C. Cage rescinded a temporary stay order to halt the air conditioning and remodeling and the State Supreme Court declined to interfere with the ruling on application for an injunction.

Carrier Corp. of Syracuse, N. Y., has contracted to supply the air-conditioning equipment for \$286,274 with the remainder of the \$488,069

(Concluded on Page 2, Column 1)

ACMA 1937 Total Up; January Sales Down

WASHINGTON, D. C.—Installed cost of equipment sold by members of Air Conditioning Manufacturers Association during 1937 totaled \$81,510,202, an increase of 63% over the organization's record of \$49,942,301, reports William B. Henderson, executive vice president.

Installed cost of equipment sold by ACMA members in January totaled \$2,597,217, a decrease of 63% compared with January, 1937, Mr. Henderson said.

Servel Again To Sponsor 'March Of Time'

EVANSVILLE, Ind.—Servel, Inc., manufacturer of Electrolux gas refrigerators, will again sponsor the "March of Time" radio broadcast for a 13-week period beginning April 7 and ending June 30, William K. Reynolds, advertising manager, has announced. The program will be heard over at least 41 stations of National Broadcasting Co.'s "blue" network.

With Crosley

JOHN S. GARCEAU

Garceau Will Direct Crosley Advertising

CINCINNATI—Appointment of John S. Garceau as sales promotion and advertising manager of Crosley Radio Corp. has been announced by officials of the company.

Mr. Garceau, formerly sales promotion and advertising manager of the home appliance division of Fairbanks, Morse & Co., is a pioneer in electric refrigeration advertising work, having been with Kelvinator for 10 years before joining Fairbanks-Morse in the fall of 1936.

From 1927 to 1930, he was Kelvinator.

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Kitchens Spotlighted On E.E.I. Program

CHICAGO—Present and future possibilities of the all-electric kitchen will occupy a major share of attention at the fifth annual sales conference of Edison Electric Institute, to be held in the Edgewater Beach hotel here March 29 to 31.

George E. Whitwell, chairman of the Modern Kitchen Bureau, will tell the meeting about "Past Progress and Immediate Potentials of the Modern Kitchen Bureau Program," and C. E. Swartzbaugh, chairman of the business development committee of National Electrical Manufacturers Association, will outline "Manufacturers' Present Thinking on The Modern Kitchen Bureau."

W. E. Sprackling, chairman of the National Adequate Wiring Bureau, will address the meeting on the National Adequate Wiring Program.

R. R. Herrmann, manager of the

(Concluded on Page 13, Column 5)

Suggestions For Variety Of Promotion Stunts Offered By Kitchen Bureau To Dealers

NEW YORK CITY—As a "mental springboard" to aid dealers in developing ideas to make their 1938 electric range promotions successful, Modern Kitchen Bureau has issued a booklet outlining several plans that have been used successfully in the past by local utility companies and kitchen bureaus.

The suggestions cover shows and expositions, contests, floor demonstrations and displays, newspaper advertising, other printed matter, and general procedure.

One good way of arousing interest in the promotion, the leaflet suggests, is to gather together recipes of the favorite dishes of England, France, Germany, Italy, Switzerland, Poland, Hungary, Turkey, East Africa, India, China, Japan, Australia, etc.

Some countries are famous for a certain kind of soup, or fish, or roast, or salad or dessert, or coffee.

In one of the country's leading cities, the leaflet says, a sensation

Dealers Set For Organization Of National Scope**Collective Action Urged As Means Of 'Saving' The 'Independent'**

NEW YORK CITY—Wheels started turning toward the formation of a National Association of Radio and Appliance Retailers at a meeting of dealers and association executives in the Commodore hotel here Monday, March 21. About 45 men attended, including representatives of the press.

Russell Atkinson of Brooklyn, who presided over the meeting as temporary chairman, was elected president. Homer C. Davis of Philadelphia was elected vice president and chairman of the board; William H. Frederick of Wilmington, Del., is the recording secretary.

B. H. Poucher of Philadelphia was appointed temporary executive secretary; and Ralph Wegner, who came all the way from Fort Wayne, Ind., to attend the meeting (the others were all from points in or near the metropolitan New York area) was named treasurer.

It was decided that organization

(Concluded on Page 13, Column 2)

Marshall-Wells Co. To Market 'Zenith' Models Nationally

DULUTH, Minn.—Marshall-Wells Co., which makes the claim of being the largest "hard line" distributing organization in the world, will this year market its "Zenith" line of household electric refrigerators through distributors in all parts of the country, it was made known last week by officials of the company.

The firm has been distributing its own major appliances, all of which except its "Airmaster" radio bear the trade name "Zenith," for some time through its 13 branch houses located in the northwest United States and western Canada.

Seth Marshall of the distributing firm is chairman of the board of the Coolerator Co. and president of the Zenith Washing Machine Co. A number of other factories making appliances for the firm are directly owned by the Marshall-Wells organization.

The 1938 line of Zenith refrigerators is comprised of a deluxe series

(Concluded on Page 2, Column 4)

was created when a business group

was served with a complete dinner, each course of which originated in a different foreign country (including the favorite dish of a Congo chief).

Sources of this sort of information, the leaflet points out, are public libraries, foreign groups or societies in the company's service area, or newspaper advertising for favorite recipes, either with or without prizes for those accepted.

Style shows are another way of creating interest, the leaflet says.

"Local department stores or specialty shops will be glad to tie in with this effort by supplying smart new house dresses, house furnishings, and so forth," it is stated. "Or it can be staged in collaboration with a local manufacturer, or the editorial department of the local newspaper."

Efforts should be made to learn about new model homes before con-

(Concluded on Page 4, Column 4)

Court Okays Expenditure For Bank Air Cooling

(Concluded from Page 1, Column 3) to be used for installation of the system for the 18-story, \$8,000,000 building.

In handing down his decision in favor of the bank Feb. 14, Judge Cage said the question involved was whether the liquidators were making a speculative investment by spending the money for air conditioning the building or were conserving the value of an \$8,000,000 asset. Holding that the latter was true, Judge Cage authorized the expenditure.

During the hearing, testimony was heard from H. Lynch, building manager, and others that the air conditioning would be of definite value by increasing rentals, pay for itself by larger returns and improve the health and comfort of tenants and employees.

Managers of the American Bank building, a competitor, testified, for instance, that if "we were the Canal Bank, we would air condition." James Gilly, vice president of the Whitney National Bank, said it would be "good business."

The depositors, who brought the action, claimed air conditioning would cause a raise in rentals and would impair the financial structure of the liquidation as well as that of the building. They wanted the money to be paid out as interest on "frozen deposits," but the court held that air conditioning would conserve the assets, particularly since the tenants had agreed to a raise in rental and, on the other hand, would move out if the building were not conditioned.

Nema Commercial Sales Drop In January

(Concluded from Page 1, Column 2) ers of the air-cooled type this January totaled 1,150 units, while sales of water-cooled units totaled 153 units during the month. The figures represent a further breakdown in Nema statistical data, since no distinction was made between air and water-cooled units in last year's reports.

Another classification not listed separately in last year's statistics covers central-station conditioners with capacities of 5 tons and over, of which 16 sales are reported for this January.

With the exception of conditioners, however, sales of other commercial refrigeration equipment tended to show declines, as compared with January, 1937, figures.

Bottle water cooler sales this year totaled 149 units, compared with 205 during the month last year; pressure water cooler sales totaled 573, compared with 602 last year; ice cream cabinet sales totaled 1,126, against 1,793 last year; beverage cooler sales were 2,700 units, against 1,080 last year.

World sales of commercial condensing units during January totaled 5,143 units, compared with 9,178 units during the same month last year. Units of $\frac{1}{3}$ hp. led the list, with a total of 1,715, while those of $\frac{1}{2}$ -hp. capacity showed sales of 905. Sales of condensing units under $\frac{1}{3}$ hp. totaled 1,030 units.

Manufacturers reporting January commercial sales to Nema Commercial Refrigeration Section included Brunner Mfg. Co., Carrier Corp.,

Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator division of Nash-Kelvinator Corp., Merchant & Evans Co., Norge division of Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

C. G. Frantz Retains Apex Presidency

(Concluded from Page 1, Column 3) Apex company which began about five weeks ago when an independent stockholders' committee moved to oust C. G. Frantz as president.

This committee, composed of W. A. Frantz, Mr. Morgan, and Mr. Clarke, proposed to elect Mr. Clarke to the presidency and offer C. G. Frantz the post of board chairman. Letters were sent by the committee to Apex stockholders soliciting proxies for the annual meeting.

The committee charged that the company's affairs have been mismanaged for the past several years, and stated that its sole purpose in urging the removal of C. G. Frantz was to conserve the earning power of the company and obtain for it a strong, experienced management.

After the release three weeks ago of the company's annual statement for 1937, which showed an earnings drop of 38.5% and a sales increase of 20.8%, four directors backing C. G. Frantz issued a letter to stockholders in which they stated that the decline was in keeping with general experiences in the industry, that the profit represented a 13% return on capital and surplus.

Pearce Named Secretary Of Porcelain Institute

(Concluded from Page 1, Column 2) nooga, Tenn., one of the first producers of all-porcelain enameled refrigerators, specializing in the development of the one-piece porcelain enameled liner.

In 1926, Mr. Pearce joined the budgetary control division of Frigidaire Corp., Dayton, Ohio. He was appointed head of Frigidaire's porcelain enameling department in 1930.

He left early in 1935 to become manager of the enameling operations of Davidson Enamel Co., Clyde, Ohio. In the fall of that year he joined the Farm Security Administration.

'38 Zenith Refrigerator Has Hermetic Unit and 'Throttle Tube' System

(Concluded from Page 1, Column 5) of three models, and a master series of three models.

In the Zenith deluxe series refrigeration is supplied by a hermetically sealed "Econopower" unit, which Marshall-Wells officials declare to be a cross between Frigidaire's rotary "meter miser" unit and General Electric's Scotch-yoke compressor.

The unit is said to be similar to that built by the Belding-Hall Co. (a subsidiary of Gibson Electric Refrigerator Corp.) in the AMC refrigerator which it makes for the Associated Merchandising Corp.

Delco Motors furnishes the motor winding for the unit, which uses a $\frac{1}{6}$ -hp. motor, and also the overload protector and the $\frac{1}{100}$ -hp. oil-less forced-draft circulating fan to speed up condenser cooling.

Freon-12 is the refrigerant used in the "Econopower" machine, which is equipped with three shut-off valves, so that it may be serviced in the field.

The "throttle tube" method of metering the refrigerant into the evaporator is used in the Zenith refrigerator. The evaporators are of all-copper construction. A network of refrigerant tubing under each of the double-width shelves in the evaporator is designed to provide fast freezing.

Deluxe models are marked by the inclusion of a number of convenience features. A meat chest fits into an "indented" shelf under the evaporator, there is a door basket on the bottom half of the door interior and a built-in thermometer on the upper half of the inside door panel, a large sliding storage drawer and a smaller utility basket on the bottom of the cabinet interior, a vegetable bin, easy-glide shelf, pick-out, split-shelf section, finger-tip ice tray releases, and a 5-piece set of pottery ware in blue.

Cabinet design for the entire line is in the mode which has characterized Norge and Kelvinator models for the past several years; solid, massive lines with rounded corners and top.

The master models employ a slow-speed, belt-driven single-cylinder Freon-12 condensing unit with forced-draft cooling. The "throttle tube" principle is also used in the master models.

Cabinets in the master line are identical with those in the deluxe line, with the exception that they are stripped of most of the convenience features.

All merchandising plans and advertising material on the Zenith electric refrigerator are being made up at the main offices of the Marshall-Wells Co. in Duluth. No national advertising program is contemplated at the present time. An advertising allowance on each refrigerator will be included with the dealer's discount.

Key specifications of Zenith refrigerators are given in the accompanying table:

THE COLD CANVASS

By B. T. Umor

(Concluded from Page 1, Column 1) when a fuzzy little grey mouse scuttled out.

When this happened a second time, she determined to put an end to it, so she installed a mouse trap, fully baited and set, on the refrigerator's bottom shelf. Within a comparatively short space of time she had in this way captured no less than six fuzzy little grey mice.

But preserving food, not catching mice, was the job which her refrigerator ought to perform, this lady thought, so she asked the salesman if he would send a man out to look at the refrigerator. "Perhaps," she suggested, "he might be able to find out how the mice got in."

"Send a man?" the astonished salesman exclaimed, "Hell, lady, I want to see that box myself. When will you be home?"

Once They Snooped Spies, Now They Sleuth Sales

It appears that success in the air-conditioning and electric refrigeration business may be predicated on a capacity for snooping. J. B. Chambers, regional manager for Chrysler Airtemp, served with the British Army, department of military intelligence (spy to you), during the World War. A. R. MacMillan, in charge of sales education work for Delco-Frigidaire Conditioning Corp., served in a similar capacity in the United States Army, and E. T. Hangesterfer, district representative for Detroit branch of Frigidaire, functioned in the intelligence service maintained by the Department of Justice during the war days.

Cooling Off the 'Suzy Q'ers'

The air-conditioned "Suzy Q" is being danced in Charlotte, N. C., in the South's first air-conditioned dancing studio, opened by Mrs. Lucy Heath Duffie, credited with being the co-introducer of the "Big Apple."

Page-Williamson, Inc., Charlotte distributor for Kelvinator division, Nash-Kelvinator Corp., made the installation. Mrs. Duffie's studio was built from plans drawn especially for the Kelvinator year-around air-conditioning system under the direction of W. H. Williamson, Jr., president of the distributorship.

"The recent popular dances," explains Mrs. Duffie, "require a maximum of physical energy. Such exertion does not leave the dancers exhausted when the air is clean and dust-free, and has proper temperature and humidity control. In the comfortable surroundings provided by the air-conditioning system in our studio, we have found that dancers learn more easily and quickly, and enjoy dancing more."

Mark Twain Said—

One more Carrier yarn this week. Walter Bowe, advertising manager, is very proud of the fact that his daughter, Evelyn, recently won second prize (a Corona typewriter, by gum) in a Syracuse high school contest.

All by herself, without prompting, she chose as her subject: "Air Conditioning as a Factor in Business."

Walter says the opening paragraph of her essay will convince any scoffers that he had nothing to do with its composition. Her beginning:

"As Mark Twain said, 'Everybody talks about the weather, but nobody does anything about it.'"

Key Specifications Of 1938 Zenith Models

Model No.	Capacity Cu. Ft.	Shelf Area Sq. Ft.	No. Ice Trays	No. of Cubes	Lbs. of Ice	—Exterior Dimensions— (Inches)		
						Height	Width	Depth
DELUXE SERIES								
DH-568	5.6	12.24	3	83	8	54	28 $\frac{1}{2}$	24 $\frac{1}{2}$
DH-638	6.3	14.5	4	..	10	57 $\frac{1}{2}$	30	26
DH-748	7.4	15.5	5	104	12	61 $\frac{1}{4}$	30 $\frac{1}{2}$	25 $\frac{1}{2}$
MASTER SERIES								
MS-418	4.1	7.5	..	42	..	50 $\frac{1}{2}$	24	22 $\frac{1}{2}$
MS-558	5.5	11.9	4	84	8	54	28 $\frac{1}{2}$	25 $\frac{1}{2}$
MS-638	6.3	13.8	4	84	8	57 $\frac{1}{2}$	30	25 $\frac{1}{2}$

THIS LABEL
can help your sales story

Insulated with ARMSTRONG-CORNING WOOL
DEVELOPED BY THE MAKERS OF ARMSTRONG'S LINOLEUM AND PYREX OVENWARE
ARMSTRONG CORK PRODUCTS CO.
LANCASTER, PENNSYLVANIA

... Two Well-known Names Assure Quick Approval of Cabinets Insulated This Way

MOST customers prefer to buy what they're familiar with—articles branded with a name known to them. That's why refrigerators insulated with Armstrong-Corning Wool Insulation meet with the prompt approval of shoppers.

The label shown above puts two well-known names to work for you—those of the makers of Armstrong's Linoleum and of Pyrex Ovenware—brands preferred by consumers.

Highly Resilient Fibres

But that's only part of the reason why so many refrigerator manufacturers are using Armstrong-Corning Wool Insulation. This new-type, fibrous glass insulation is highly efficient. And because its fibers—made from molten minerals—are naturally highly resilient, vibration, instead of causing it to settle, merely makes this insulation

expand and fill more completely the space it is intended to occupy.

Chemically Inert and Inorganic

Armstrong-Corning Wool is chemically inert and not subject to deterioration in service. It is fireproof, acid-resistant, and odorless; can't absorb moisture; can't mold, rot,

or support vermin. It keeps its high efficiency throughout many years of service and thus aids you in retaining the good will of consumers.

For use in refrigerators, Armstrong-Corning Wool Insulation is available in veneer bats and veneer fold bats, plain bats and fold bats. Write today for samples and complete information, to Armstrong Cork Products Co., Building Materials Division, 1002 Concord St., Lancaster, Pa.



ARMSTRONG'S LIFE TEST ROOM IS ALREADY TESTING 1939 MODELS

It's none too early to plan for tests of your 1939 models in Armstrong's Life Test Room. Some models are already undergoing tests.

This Life Test Room is the largest and most complete testing unit of its kind, and is available for the use of all refrigerator manufacturers. Here temperature and humidity conditions more severe than would be found in the tropics are maintained constantly for tests. Under these controlled condi-

tions, it is possible to subject a refrigerator in a few months to as severe use as it would receive in its lifetime of kitchen service.

Armstrong engineers conduct the tests—Armstrong bears all the expense. Refrigerator manufacturers supply equipment to be tested—whether insulated with Armstrong-Corning Wool, Armstrong's Temlok, Armstrong's LK Corkboard, or a competitive insulating material.

Armstrong's EQUIPMENT INSULATION
ARMSTRONG-CORNING WOOL • ARMSTRONG'S TEMLOK • LK CORKBOARD

You'll want all **THREE THRIFTY FEATURES!**



See the **NEW 1938**
GENERAL ELECTRIC RANGE

See your **GENERAL ELECTRIC DEALER**



**ONLY THE NEW G-E
RANGE HAS ALL THESE
3 THRIFTY FEATURES**



1 TEL-A-COOK LIGHTS inform instantly when and where the current is on, and indicates the degree of heat being applied. Save electric current by making waste practically impossible. A new, exclusive General Electric feature for extra thrift.



2 SELECT-A-SPEED CALROD COOKING UNIT. Five cooking heats from one unit, with one switch! Hi-Speed, Half-Speed, Quarter-Speed are for all normal cooking; Thrift-Speed for simmering; for keeping food warm, a low Warm-Speed.



3 TRIPL-OVEN. Three-ovens-in-one. 1. Small Speed Oven for single-shelf cooking. 400° in 5 minutes—saves up to 40% in current. 2. Extra-large Master Oven. 3. Generous Super-Broiler provides greater flexibility in speed and capacity than ever before.

GOING UP and Going Over!

The striking, full-color 24-sheet poster reproduced above—and full-color advertisements in leading national women's magazines—are now telling Mrs. America about the sensational new 1938 General Electric Range with the **3 Thrifty Features**. It's going over BIG! Already sales records are being smashed right and left.

The **3 Thrifty Features** in the new G-E Range are pulling in scores of prospects to G-E Dealers' showrooms everywhere. No other range has all these features. No other can tell a more convincing story of convenience and economy.

Many of the following sales features will be found in all the new G-E models—

Tel-A-Cook Lights. Select-A-Speed Calrod Cooking Unit. Tripl-Oven. Porcelain Unitop. No-Stain Vent and Oven Moisture Control. Adjustable Non-Tip Sliding Shelves. Automatic Interior Oven Light. Automatic Oven Timer.

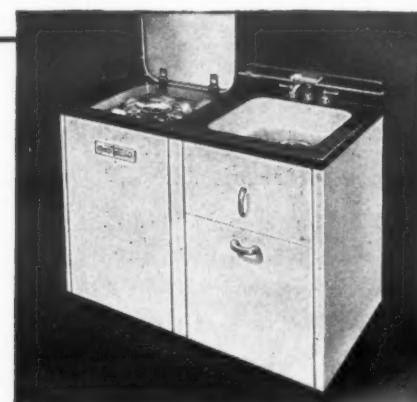
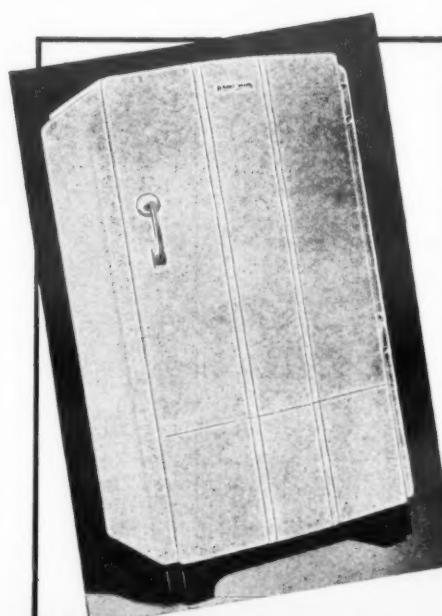
Built-In Minute Minder Chime. Generous Sized Thrift Cooker. Electrically Welded Steel Bodies. Large Storage and Warming Compartment.

Here's the range line to feature for 1938! It has the **Three Thrifty Features**—the incomparable Hi-Speed CALROD Cooking Units—a complete price spread for practically all income groups—customer appeal and customer acceptance—liberal finance plans—extensive sales promotion and advertising support—public confidence in the G-E name. See your G-E Distributor NOW! General Electric Co., Specialty Appliance Div., Nela Park, Cleveland, O.

Just Out! . . . New Sales Primer on Electric Cookery

The ABC's of electric cookery are presented in an entirely new way in General Electric's easy-to-read, easy-to-understand new book—"New Light on Heat." Profusely illustrated, it's a complete sales guide for electric range dealers and salesmen. Just off the press. Be sure to get your copy from the G-E Distributor.

NATIONAL ELECTRIC RANGE SPRING SHOWING... APRIL 11th TO 30th



GENERAL ELECTRIC SINK with Dishwasher and Disposall. Washes the dishes, disposes of food wastes—electrically. No more hand dish-washing—no more accumulation of garbage!

GENERAL ELECTRIC TRIPLE-THRIFT REFRIGERATOR. First choice of millions, now popularly priced. The refrigerator that started a "Save-Wave" in America!

The COMPLETE Line of Electrical Home Appliances—every one proved by performance, tested by time.

"**GO TO TOWN**"
on the
MAINLINE

G-E Refrigerators, Ranges,
Electric Sink with Dish-
washer and Disposall,
Water Heaters, Washers,
Ironers, also "Packaged"
Commercial Refrigeration Products.



GENERAL **ELECTRIC**

Specialty Selling Methods

Washer With 'Face' and A 'Voice' Sells Itself

CAUGHDENOY, N. Y.—An electric washer "speaks for itself" at Fred Hall's electric appliance store here.

For Mr. Hall, in collaboration with Emil Rasa, of the Syracuse, N. Y. office of Westinghouse Electric Supply Co., has developed a "talking washer" which not only stops prospects, but gives them all the answers, besides.

Placed out in front of the Hall store, its front painted with washable eyes, nose, and mouth to give it a "face," the washer "calls" to people who pass by, jokes with them, tells about itself and other home laundry equipment.

It invites them to go inside the store to see its brother washers do their stuff, and to discover how effortless ironing can be with an electric ironer.

Mechanism of the washer consists of a wireless carrier call system inside its tub, the other unit being inside the store. The sending unit is placed in a spot from where the operator can see anyone coming, hear her comments, start a conversation through the washer. The unit is adaptable to shows, etc.

Norge Magazine Drive To Open This Week

DETROIT—Stressing the ability of even the smallest Rallator compressor to power three Norge refrigerators while running only one hour out of every three, Norge division, Borg-Warner Corp. will launch its 1938 advertising campaign with a full-color double spread in the March 26 issue of Saturday Evening Post.

Simultaneously, a national newspaper campaign placing emphasis on this same feature will break in more than 75 key cities. April issues of a number of national magazines will carry similar advertisements.

In all advertising, Norge will use the catch-phrase "Norge Leads Again" and will continue to boost its full appliance line.

Included in the company's magazine schedule for the year will be full-color and black-and-white pages in Saturday Evening Post, Collier's, Good Housekeeping, Woman's Home Companion, Better Homes and Gardens, American Home, Parents, American Weekly, and This Week.

In addition to its "three-on-one" demonstration, Norge will dramatize the greater flexibility of its interior arrangement and its odor-proof ice compartment.

Department Store Finds Sales Boom Following Home Economist's Visit

SACRAMENTO, Calif.—Increased sales by the household department of Breuner's Department Store here resulted from the sales staff's formation of a training class held in the local store of the General Electric Supply Corp. of Northern California.

The school, which lasted a week, was under the direction of Miss Mae Jenkin of the G-E Home Service Institute, Cleveland. First the Breuner appliance sales crew studied electric cookery, hearing it explained and seeing it demonstrated by Miss Jenkin, and then each member took an active part in the preparation of meals.

Class meetings were held in the main display room of G-E Supply, where the staff made use of a permanent and working unit kitchen.

Birmingham Westinghouse Firm Continues Radio Newscasts

BIRMINGHAM, Ala.—To help its dealers sell more refrigerators and other electrical appliances, Moore-Handley Hardware Co., Westinghouse distributor in Alabama and western Florida, has just signed a new contract providing for continuance of the United Press news broadcast which it sponsors three times daily over radio station WAPI. Names of dealers are worked into broadcasts.

Workable Electric Kitchen Sales Plans Outlined For Dealers

(Concluded from Page 1, Column 5)

tracts are let, the booklet says, so that a modern all-electric kitchen will be included. Builders and real estate companies frequently can be induced to cooperate, it adds.

Cooperation in the local home show or builders' show also is urged, where finances permit. Failing this, the Bureau suggests making an arrangement to include an all-electric kitchen in the booth of a private exhibitor.

"Many utilities and local bureaus have found that it pays to stage a modern all-electric kitchen exposition," the Bureau says. "For this exposition, a local auditorium is rented for a week's period. Its opening is preceded by a fanfare of newspaper and radio publicity, movie theater announcements, outdoor billboards, printed broadsides and banners, window and bus cards.

"The exposition may be opened by a parade; the mayor may make the opening address. Throughout the week 'personalities' of public and business life, society, the theater and sporting worlds may make appearances."

MANY CONTEST IDEAS

Contest ideas are led off by the all-electric kitchen planning contest, of which the Bureau says:

"This was successfully conducted by opening the contest to three groups: (1) girls in junior high schools (and girls up to 14 years of age); (2) girls in senior high school (and girls up to 18 years of age); (3) girls in college (and girls between the ages of 19 and 25).

"All eligible girls wishing to compete must visit electric dealers' stores and register. The contestant must plan her own kitchen, list the makes, models, and prices of the electrical appliances selected for her kitchen."

Essay contest: "This contest also may be divided into suitable groups. The essay is generally limited to a certain length, for example, between 100 and 500 words, on the subject, "Why I would like to have an all-electric kitchen," or perhaps, "Why I would like to have an electric range."

COST-GUESSING CONTEST

Guessing contest: "In this contest, three model kitchens were displayed, one costing between \$900-\$1,100; a second costing between \$700-\$900; and a third costing between \$500-\$700.

"Each kitchen contained an electric range, electric refrigerator, electric water heater, dishwasher, cabinets, floor covering, lighting, painting, and curtains. Price of only one item was shown; for example, the electric range.

"The contestant was required to fill in the correct prices of the other items. To do so, contestants were urged to visit dealers who cooperated in the contest, and obtain from them the information needed.

"The contest can be conducted either through the newspapers, or by means of regular broadcasts over the air."

Lucky number contest: "Put an all-electric kitchen on display, and number the admission tickets. The holder of the lucky number admission stub wins the electric range. Each contestant must register at the display kitchen."

FLOOR DEMONSTRATORS

Among ideas for floor demonstrations and displays, the Bureau suggests that an electric range be put in operation on the display floor. The demonstrator will make biscuits or cookies, and offer them to store traffic for consumption on the premises.

"Most of the people accepting samples will stop at the range rather than walk through the store while munching on a cookie," the Bureau points out. This gives the demonstrator (or sales assistant) an opportunity to talk about electric cooking."

Display cards should be placed about the electric range, the Bureau suggests. These should feature the important points of electric cooking, and tell the length of time required to cook different foods.

This is suggested as a good method by which to demonstrate the speed of electric cooking.

To emphasize simplicity and safety, the Bureau suggests that the range be operated by a young girl, 13 or

14 years old. She may be the daughter of one of the women attending a cooking school, or a member of the high school's domestic science class.

In the summer, the "cool as a cucumber" theme can be used effectively, the Bureau says, both in store and window displays. A giant cucumber and a giant thermometer have great attention-getting possibilities, the Bureau points out.

WRAPPED IN CELLOPHANE

Another dramatic demonstration can be made by encasing an electric range in cellophane while the range is cooking a complete dinner. The cellophane remains crisp and colorless throughout the demonstration.

The Bureau also suggests that, while an electric range is being used in a demonstration, a meter should be attached to show the actual amount of current being consumed. Before large audiences, large discs, perhaps 3 feet in diameter, can be used. One shows the current consumed, the other translates the current into cents to show actual cost.

TOWEL DEMONSTRATION

To show cleanliness, the Bureau suggests a towel demonstration as follows: Have a clean, white towel hung near the electric range during demonstrations. After cooking, wipe the bottom of the pan, and hold the towel up for the audience to see. Same method can be used when cooking in the oven. Inside of the oven can be wiped out with the towel, to show absence of dirt and soot.

Advertising suggestions include use of a special newspaper section in connection with the Electric Range Spring Showing, as well as special sections later on in the year. These can be used in connection with model home openings, builders shows, etc.

NEWSPAPER HINTS

Another summer attention-getting plan is to feature weather bulletins, the advertisements playing up the coolness of electric cooking.

The Bureau also urges the promotion of the all-electric kitchen in monthly bill enclosures, the publication of a monthly house organ containing household hints, tips on running the kitchen, and other stories.

A productive source of electrical appliance business, the Bureau says, is the newly-married couple. Setting up a "bride advisor" department to give special attention to brides' problems—tips on cooking, how to establish a modern, efficient kitchen, etc.—leads to many appliance sales, it is pointed out.

Crosley Window Display Duplicates Post Copy

CINCINNATI—Crosley Radio Corp. has prepared a special window display and small-size local newspaper advertisement to tie-in with its two-page opening advertisement in the March 26 Saturday Evening Post, which appears on the newsstands March 22.

With the window display material, dealers can make their windows an exact reproduction of the Post advertisement, cashing in locally on the national attention aroused.

Both advertisement and window display feature the new Crosley's faster freezing, greater ice capacity, the new quick release cube tray, economy of operation, the convenience of having a radio in the refrigerator, and the more usable space which the Sheldador feature provides.

N. J. Employee Campaign Brings 11,000 Leads

NEWARK, N. J.—During the first two months of the Comfort Condition Homes Campaign now being conducted by Public Service Corp. of New Jersey, 2,247 employees turned in 10,932 leads for electric and gas appliances, an average of 4.9 leads per employee participating.

The leads have resulted in 2,242 lead-sales, or 67.4% of quota, the company reports.

AMONG all its other listed advantages, including extra insulation, welded construction, Polar Power sealed unit and Champion ice-making capacity is a "beautiful, enduring finish, baked on heavy Bonderized steel."

While Bonderizing is a hidden, unseen quality, it adds a sales value appreciated by the buyer. The fact that it prevents rust and assures that enduring beauty, so desirable on refrigerator equip-

ment, is an effective sales appeal to the fastidious housekeeper.

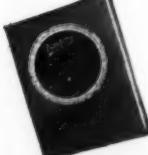
Lying under the enamel, Bonderizing assures adhesion of the Kelvinator finish to the metal and is a feature that the salesman can use to advantage. In selling Kelvinators always tell the customer, "This refrigerator is Bonderized."

PARKER RUST-PROOF COMPANY
2197 E. Milwaukee Ave. • Detroit, Michigan

PARKER
Processes CONQUER RUST
BONDERIZING • PARKERIZING

A book describing and illustrating how Bonderizing is applied and why it is adequate protection from rust is available. Send for your copy.

WHAT A SALESMAN SHOULD KNOW ABOUT BONDERIZING



CROSLEY dealers are making sales NOW with this story!

THE HANDIEST REFRIGERATOR EVER BUILT

Here's a refrigerator in which a woman can get at things easily. Nothing gets lost. The shelves in the door permit storing of small items so ingeniously that you can actually get MORE FOOD in the Shelvador than in ordinary refrigerators of equal size.

CROSLEY SHELVADOR

A refrigerator is a little room from which an ingenious device extracts heat, providing safe food storage temperature. To do so costs money. Hence skillful placing of food is necessary to use all that cooled space. The Shelvador efficiently fills all space—eggs, fruit, butter, bacon, and covered dishes, in the door shelves; bulkier foods on the cabinet shelves. When you open the door foods are instantly findable, and you close it promptly. Safe box temperature is maintained and little current used. And the orderly storage makes true the statement that you can "put more food in the Shelvador."

with built-in RADIO



All refrigerators are good—all look alike—all have the same selling appeal. The buyer's dollar will come easiest to the one that has more to offer than the rest. With the Shelvador and built-in Radio, Crosley dealers have a powerful customer attraction and sales-closer that is creating business now.

THE CROSLEY RADIO CORPORATION — **CINCINNATI**
POWELL CROSLEY, Jr., President
Home of "the Nation's Station"—WLW—500,000 watts—
70 on your dial

SAVE MONEY

These Effective Ways!

SAVE STEPS

Many features like Quick Crisper, removable shelf sections, covered jars for leftovers, and the Storated drawer for non-refrigerated storage save many steps and time.

SAVE UP-KEEP

Amazing new glass wool insulation proves most practical and efficient of all insulation. Dulux finish and chrome hardware make cleaning easier.



SAVE FOOD

Convenient storage for small items where you can always see them and easily reach them, saves many a leftover that might be forgotten and wasted.

SAVE CURRENT

New sealed Electrosaver unit shows highest operating efficiency. Running periods are short. This saves wear on motor. Temperature control permits economical cooling.

Put your effort behind the refrigerator that is easiest to sell women!

Profitable Sales Ideas

Dealer Shows Movie To Housewives and Provides 'Sound Effects' With Sales Talk

TOPEKA, Kan.—Showing motion pictures of his appliances at various civic association meetings has proved a valuable sales and interest stimulator for Cliff Dodge, co-partner of Dodge-Van Es Appliance Store here.

Mr. Dodge contacts the officials of many local women's organizations, whose names he secures from churches, society items, group headquarters, and presents to them his proposition for the movie show.

Since most such clubs usually need funds and welcome variety in their regular programs, the Dodge-Van Es offer of a "bounty" of 10 cents each for all regular members and visitors who will attend the meeting at which the pictures are shown invariably is accepted.

Mr. Dodge takes a portable projector to the club meeting, and along with it takes educational reels about the particular appliance his store is featuring in both lines handled, Hotpoint and Crosley.

He sets up the projector and screen and begins his program. As the movie progresses, Mr. Dodge gives an informal running comment in a humorous vein. One quip that always brings a laugh is his remark that if husbands tipped their wives as they do waitresses for three good meals a day, that alone would pay for the refrigeration or electric range expense.

Mr. Dodge's program takes about 20 minutes, and whenever price is mentioned, which is rarely, it is

brought about indirectly.

Nine out of 10 women are already sold on electric appliances, Mr. Dodge feels, and in his commentaries he tries to give the women selling points which can be carried home to the "budget director," i. e. the husband. If price has to be discussed, the small down payment and small instalments are emphasized, following the line of least resistance in customer attitude.

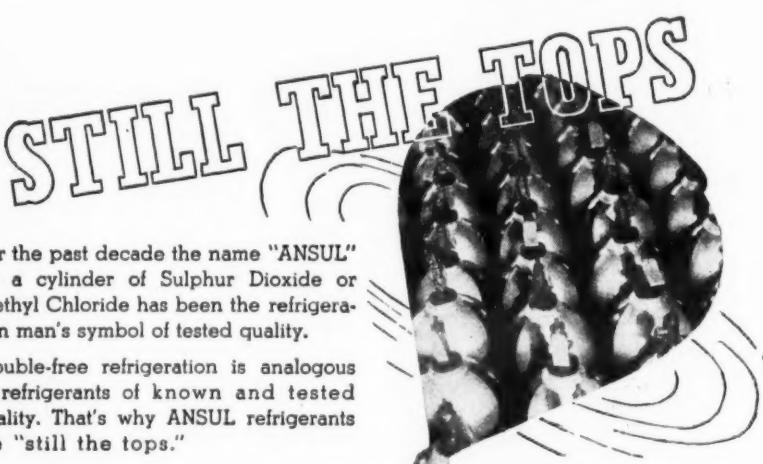
Through his movie plan, Mr. Dodge attains extremely inexpensive publicity and cements good will on the part of the women. Confidence in the Dodge-Van Es company is established, since Mr. Dodge's talk and motion pictures are of an educational nature and don't smack of high-pressure salesmanship.

The dealer's records show an average of 2.5 sales for each group meeting attended by Mr. Dodge for the immediately year following the season of his visits.

It is planned to resume the series of movies this spring, and already organizations have been contacted.

New Boise Dealer Named For Kelvinator Line

BOISE, Idaho—Boise Piano House has been named dealer in Kelvinator refrigerators and ranges. Don Johnson is manager of the appliance department.



For the past decade the name "ANSUL" on a cylinder of Sulphur Dioxide or Methyl Chloride has been the refrigeration man's symbol of tested quality.

Trouble-free refrigeration is analogous to refrigerants of known and tested quality. That's why ANSUL refrigerants are "still the tops."

ANSUL
SULPHUR DIOXIDE • METHYL CHLORIDE
ANSUL CHEMICAL COMPANY
MARINETTE WISCONSIN

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

No. 1 of a Series of Curtis Advanced Engineering Features.

TIMKEN TAPERED ROLLER MAIN BEARINGS

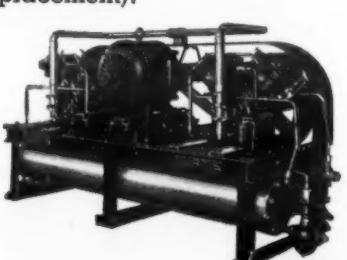
Increase efficiency—thermal and mechanical due to less friction.

Take end thrust due to crankcase and seal spring pressure.

Insure longer life.

Provide for adjustment when needed (at such time plain bearings need replacement).

Yes, they are more expensive (but not to you). This is just one example of the engineering originality and extra value incorporated in Curtis Condensing Units that contributes so much to their dependable, care-free performance.



CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 KIENLEN AVENUE

ST. LOUIS, MO.

'Antique Appliance' Contest Features Cincinnati Show

CINCINNATI—An "Antique Appliance" contest, offering \$100 in prizes for the most interesting entries, will be a feature of the sixth annual Electrical Progress Exposition, opening March 21 for six days in the Union Central annex here.

The exposition is being staged by the Cincinnati Electrical Association and the Cincinnati Times-Star, daily newspaper.

"We put no age limit on the appliances which can be entered in the contest," stated E. P. Zachman, business manager of the association. "Prizes will go to devices which are the most interesting, and it doesn't make any difference whether they are 50 years old or 150 years old."

Exposition officials are seeking articles used in domestic life by early settlers in Cincinnati. This is to tie in with the city's 150th birthday, being celebrated this year.

The antiques will be displayed alongside a group of 1938 appliances. Contest directors have stipulated that only devices formerly in common domestic use, which served purposes now achieved by electrical appliances, will be accepted as entries.

To illustrate their point, equipment used in the old-time spring houses, in which early Cincinnati settlers stored their butter, eggs, milk and other perishable foods, may be entered as predecessors of modern electric refrigerators.

The antiques, which are merely to be loaned by contestants for the duration of the exposition, will be displayed in glass cases. Watchmen will be on duty to guard against damage or loss.

Prize money will be distributed as follows: first prize, \$25; second prize, \$20; third prize, \$15; fourth prize, \$10; six additional prizes, \$5 each.

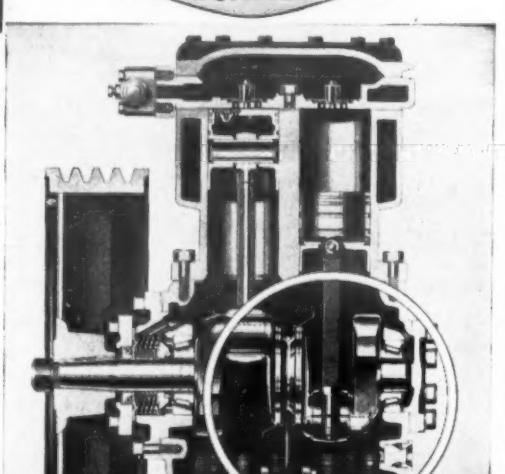
Another contest to be held in connection with the exposition will be open to all persons attending the show. Object is to estimate the attendance each day, write the estimate with name and address on a blank, and deposit the slip in a box.

Dealer Scores 75% Sales On 99 Kitchen Plans

MILWAUKEE—Of 99 kitchen plans submitted during 1937 by A. G. Blitz, kitchen planning specialist and sales training director of Wisconsin Public Service Corp., General Electric outlet, 72 have been adopted, 18 are still being considered by prospects, and only nine have been discarded, according to Allen C. Davey, general merchandise manager.

Sales averaged 1.33 appliances for each of the 72 plans used, their average value being \$175.85. Twelve triple and 18 double sales resulted, and there are still prospects of 0.75 appliances per plan.

TIMKEN BEARING EQUIPPED



CURTIS
Builders of Condensing Units Since 1922
— for every air conditioning and refrigeration requirement.

Month-By-Month Quota Agreement With Star Salesmen Cuts Size Of Staff

NEW ORLEANS—A month-by-month quota agreement with salesmen will enable the Oak Appliance Co. here to keep its six "regulars" working at top all through the year, without the necessity of taking on and training additional men for the peak selling season, believes O. L. Radford, co-owner.

Such an arrangement maintains the inducement to salesmen to keep the trade-in figure low.

Result of this selling has been to build a higher type sales personnel than would be possible under other arrangements, Mr. Radford is convinced. The higher type sales personnel is the best solution to the drawing account problem, since these are the men less likely to call on the company for financial help—which is sometimes given, of course, if the concern believes that the actual emergency warrants giving the assistance.

Disposal of trade-ins has been greatly facilitated by opening a used appliance shop near the new appliance store, but across the street, with the simple title, "Used Appliances," over the door.

Formerly, used merchandise was handled in space at the rear of the regular store. This made it difficult to segregate the "new merchandise" customers from those interested in used equipment.

Classified advertising can now be used more freely to bring customers to the used store. It is an easy jump from there to the new appliance store across the street, and salesmen work in both sales rooms. "Cleaner" selling is the result.

The several types of appliances are equally salable by all salesmen, and there is little need for discriminatory selling, or different sales plans for each of them, Mr. Radford insists. "We know that every 10 years, there is a turnover in ranges; that every so many years new refrigerators are needed. By carrying a wide range of major appliances, we are assured of meeting some need in almost every home."

Salesman Finds It Easy To Sell 'Up' When He Uses User's Kitchen As His Showroom

OAKLAND, Calif.—Using a prospect's home for a show-room, H. S. Lacey, salesman for the electrical appliance department of the Maxwell Hardware Co., made eight immediate refrigerator deals in the neighborhood, and has since made three additional ones from the same source.

"It was a case of taking proper advantage of a piece of good luck," says Mr. Lacey. "It taught me a mighty profitable lesson on how to use 'breaks' when I get them."

The first prospect came from a floor inquiry. At the time the woman was in, she said she wanted a refrigerator but that her husband intended to buy one of another make. She suggested the salesman call at her chicken ranch home several miles out and see her husband.

Finding the husband willing "to be shown," Mr. Lacey went back to the store and brought out a refrigerator.

operator in the size the family wanted. He closed the deal easily. But he didn't stop there.

"It just occurred to me," he told the woman, "that it's hard for you to get into town—and I imagine it's the same way with your neighbors. Would you like to invite them in to see your new refrigerator? I know they'll enjoy seeing it, and besides, if any of them happen to need a refrigerator, it will save them a trip downtown."

The customer called in about a dozen neighbors and told them a glowing story of her new possession. Several contracts were signed right then, and all eight sales were closed within 24 hours. Some of the buyers didn't even bother to come in and examine other size units. By a little play on competitive pride, the salesman induced a number of the neighbors to take larger boxes than the first customer.

Trouble-Proof Service Absolute Sanitation Greater Reliability

• Progressive dealers everywhere will want to find out all about the new improved Halsey Taylor Electric Water Coolers. They are the crowning achievement of an organization that for years has won an enviable reputation for quality drinking water fixtures. Many extra advantages make Halsey Taylor Coolers easier to sell, more profitable, and far more satisfactory and dependable in service. Write for new catalog just off the press.

Halsey Taylor
electric water coolers

The Halsey W. Taylor Co.
Warren, Ohio

Distributor-Dealer Doings

Dealer Ups Salaries 10% To Help Beat 'Depression'

SPRINGFIELD, Mass.—A 10% salary increase for all employees of Albert Radio Stores, appliance dealership with stores here and in Hartford, Conn., was announced by President B. R. Albert at the first of a series of monthly meetings between employers and employees at Hotel Highland.

In announcing the raise, Mr. Albert explained that he believed that such a move would prove to be a great help in "beating the present depression."

The meeting opened with a dinner. Following the announcement of the raise, a round-table discussion was held, with members of both employee and management groups giving their individual opinions on how customer relations might be improved and sales increased.

The company plans to hold similar "family meetings" each month, so that the entire personnel of the organization may have an opportunity for friendly discussion of mutual business problems.

6 Kelvinator Dealers Added In Texas

SAN ANTONIO, Tex.—Six new dealers have been appointed by Southern Equipment Co., Kelvinator distributor for southwest Texas, according to Frank G. Atwater, manager.

Perkins Bros. Co. has been named to handle the Kelvinator line of refrigerators and major appliances in Corpus Christi. Perkins headquarters are in Dallas, and the company operates 23 stores in Texas. The Corpus Christi branch is reported to be the only one of the Perkins stores handling Kelvinator at present.

Its major appliance division has been established in a separate store adjoining the main building. As a special stunt at the opening of this department, a 100-lb. cube of ice was frozen on the bottom of the evaporator of a 1938 Kelvinator.

Members of the Perkins appliance department are: A. L. Andrews, manager; Millard Agnew, sales supervisor; A. B. Musselwhite, Richard Mathews, H. L. Billington, and Lee Campbell, salesmen; Grant Raney and O. P. McCollum, Jr., service men; and John D. McNeill, technician.

Mr. Andrews had been with the Texas Power & Light Co., Dallas, for 16 years, gaining considerable experience as a merchandiser of major household appliances.

The five other dealers appointed by Southern Equipment Co. are: Dittlinger and Dare, Robstown; Temple Lumber Co., George West; Nixon Hydro Gas Co., Nixon; Tips Furniture Co., Three Rivers; and Knight & Stewart, Austin.

G. C. Beal is manager of Temple Lumber Co.; G. C. Woodruff is manager of Nixon Hydro Gas Co.; Eugene Tips is owner and manager of Tips Furniture Co.

Monroe Hardware Co. Moves To Larger Quarters

NEW ORLEANS—Monroe Hardware Co. of Louisiana has moved its local office and warehouse to larger quarters at 315 N. Carrollton Ave., according to W. B. Meek, manager of the electrical department of the New Orleans branch, Westinghouse distributor.

J. J. Snider Opens Branch In Rocky Ford, Ga.

ROCKY FORD, Ga.—J. J. Snider Co., Leonard distributor with main office in Savannah, has opened a wholesale and retail branch here. E. D. Howard is wholesale manager of assistant manager; and Jack Kendrick the branch; Wade Holzendorf is as retail sales manager.

Marshall Wells Holds Showing & School

SPOKANE, Wash.—A three-day merchandising meeting and product presentation followed by a three-day sales school was held here recently by Marshall Wells Co., Crosley distributor, for 117 Crosley dealers.

The new Crosley refrigerators and gas ranges were introduced to dealers by P. W. Balkowsky, Crosley district manager. The product display was followed by the customary outline of the company's merchandising program for 1938.

At the sales school which followed, dealer salesmen were instructed in every detail of appliance selling, and were told how to capitalize on Crosley features.

Gibson Appoints Five New Distributors

GREENVILLE, Mich.—Appointment of five new distributors for Gibson electric refrigerators has been announced by John L. Stephens, sales promotion manager of Gibson Electric Refrigerator Corp.

Roycroft Iowa Co., Des Moines, Iowa, will distribute Gibson products throughout most of that state; and Pearson Co., Indianapolis, will serve dealers in the central Indiana territory.

Other new distributors are: Herrnstein Hardware Co., Chillicothe, Ohio; M. A. Hartley & Co., Gettysburg, Pa.; and W. B. Horton Co., Fargo, N. D.

Sunset Electric To Move To New Offices

SEATTLE—Sunset Electric Co., Frigidaire distributor here, has moved to new offices and warehouse at 300 Westlake Ave. North.

New York State Group Planning Promotion

UTICA, N. Y.—Promotional plans for the coming season were discussed at a meeting of Utica & Mohawk Valley Radio & Appliance Association here March 16, reports Secretary G. P. Moore.

Fred O. Schwender of Schwenders, Inc., was named delegate to the national dealers' meeting in New York City March 21.

D. J. Drummond To Represent Potter In Wisconsin

JANESVILLE, Wis.—David J. Drummond has been appointed representative for the state of Wisconsin for Potter Refrigerator Corp., Buffalo, and will make his headquarters here.

Mr. Drummond has been in the retail and wholesale appliance field for several years, and formerly was a leading distributor in the state.

Brown Supply Holds Its Spring Show For 300

ST. LOUIS—A spring showing of its 1938 merchandise was held here last week by Brown Supply Co., distributor of household appliances and electrical supplies. More than 300 dealers attended the display, which included Copeland electric refrigerators, Superflex kerosene refrigerators, Universal electric ranges, ABC washers and ironers, and Stromberg-Carlson radios.

Factory representatives present included: W. G. von Meyer, sales manager of Copeland Refrigeration Corp.; M. M. Myers, district manager of Altorfer Bros. Co.; Kenneth Gillespie, radio manager of the southwest division, and Oval McCann, district manager of Stromberg-Carlson Tel. Mfg. Co.; Jack Robinson, Superflex district manager of Perfection Stove Co.

The dealers were welcomed by Norman S. Brown, president, Fred A. Wiebe, vice president in charge of sales, and P. A. Ware.

HERE'S A PROFIT STORY That's Worth Seeing... Hearing... Demonstrating



Yes, dealers from coast to coast, in increasing numbers, are finding that Fairbanks-Morse refrigerator owners are real boosters. They actually send prospects to your store



You need not pass up a single prospect with the Fairbanks-Morse line. Models, sizes, and prices to meet every requirement. It's important to "sell something different in 1938"



The prospect goes a step farther and sees the Fairbanks-Morse refrigerator with the Conservador. She recognizes at once that here is outstanding improvement—not just a gadget!



Mr. Husband takes a look and gets the swing of things. No other refrigerator can offer the highly dramatic demonstration possibilities of the Fairbanks-Morse with the Conservador



—and a single demonstration clinches the deal. This convincing story will pave the way to more profits in 1938, for more Fairbanks-Morse dealers, than ever before

WHAT'S going to make YOUR prospect buy in 1938? An outstanding refrigerator plus a good sales presentation! The above pictures are from a new sales demonstration film, "Mrs. Nelson Wins a Wager." Every appliance dealer should see it, because it's a complete demonstration in itself—a complete sales story well told. Whether you are a Fairbanks-Morse dealer or not, any of our distributors will be glad to show you this film. Ask one, or write Fairbanks, Morse & Co., Home Appliance Division, 2060 Northwestern Ave., Indianapolis, Ind. Backed by 108 years of engineering and manufacturing experience.



THREE NEW LINES

—A Super Deluxe line with CONSERVADOR—a Deluxe line without CONSERVADOR—and a price-leader line—all backed by a 5-year protection plan. Model E-6 illustrated at the right.

FAIRBANKS MORSE

REFRIGERATORS • RADIOS • WASHERS • IRONERS

Commercial Refrigeration

Potomac Edison To Hold Exhibition Of Commercial Units

HAGERSTOWN, Md.—A commercial refrigeration and air-conditioning exhibition will be staged by the Potomac Edison Co. in the state armory here April 20, 21, and 22.

Covering practically all types of commercial equipment, the show will consist of operating exhibits by manufacturers of air-conditioning units of all types and sizes, ventilating equipment, beverage coolers, ice cream cabinets, water coolers, refrigerated display cases, cold storage units, and other refrigeration products.

MANY APPLIANCES LISTED

Displays also will include commercial lighting of all kinds, water heaters, room and space heaters, strip and immersion heaters, food preparation equipment, coffee-making equipment, and a group of miscellaneous equipment.

All available display space already has been reserved, according to S. S. Bradford, promotional manager of the Potomac Edison Co., and considerable interest has been aroused among the company's commercial group of 9,000 customers in Maryland, northern Virginia, and parts of West Virginia and Pennsylvania.

AIR CONDITIONING

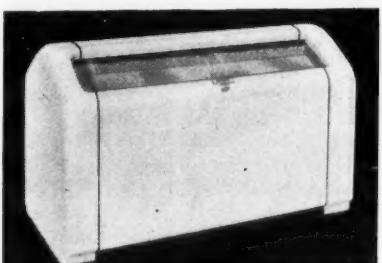
Among the several unusual displays to be shown at the exhibition are the commercial application of the photo-electric cell, the world's largest and smallest electric lamp bulbs, and the electrostatic precipitator.

The air-conditioning section is expected to be one of the features of the show. Included will be a complete display of equipment from the smallest of self-contained units up to large compressors. The various operating units will be demonstrated and explained by air-conditioning engineers.

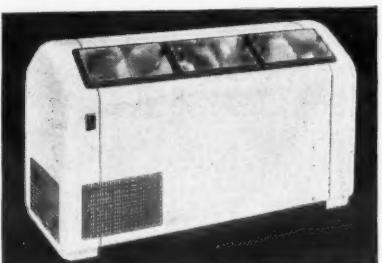
FREE TRANSPORTATION

To insure a large attendance, the Potomac Edison system is sending invitations, tickets, and descriptive literature to every commercial customer, and is providing transportation to and from the show for those desiring it.

For Frozen Foods



Front view of the display case for quick-frozen foods introduced by the Weber Showcase & Fixture Co.



Rear view of the case, showing louvers for the machine compartment. The case is self-contained and portable.

Taylor Freezer Offers Frozen Malt Machine

BELOIT, Wis.—Taylor Freezer Corp. recently has brought out an automatic ice cream freezer known as the "Freez-Matic," especially designed for making and serving frosted malted milks.

An adjustable automatic control keeps the frozen malted mix always ready for serving fresh from the freezer. Fast freezing is claimed for the unit because the semi-flooded direct-expansion system brings the refrigerant into direct contact with all sides and end of the freezer shell. From 5 to 9 gallons can be frozen per hour, it is claimed.

Taylor's "whirl" beater is said to give quick whipping, to make a smooth mix. The beater's pump action and special design is said to accomplish fast, complete emptying.

A special draw-off valve is designed to make easier the filling of cups, cones, packages, and cans. No cup filler is needed, the company claims.

All freezer parts are of solid nickel; the unit requires little floor space, being 31 inches long, 26 inches wide, and 30 1/4 inches high. Height of the freezer is 48 3/4 inches.

Commission Based On Trade-In Solves Whitten's Problem

AUSTIN, Tex.—Solution of the commercial refrigeration trade-in problem begins—and ends—with the commercial refrigeration salesman, believes John W. Whitten, who, with his brother, A. W. Whitten, has built the Whitten Sales Co.'s commercial business into a \$50,000-a-year average in two and a half years.

Freedom from trade-in worries has played a large part in the firm's progress, Mr. Whitten believes. The company seldom has more used units on hand than its normal trade warrants. Careful selection of salesmen, and a definite understanding on trade-ins, are two of the firm's cardinal operating principles.

HOW THEY'RE HIRED

"We are slow to hire a salesman," explains Mr. Whitten, "because we find it extremely difficult to find a man who knows enough about commercial refrigeration and business together to be satisfactory."

"When we do hire a man, we make sure he knows at least the fundamentals of commercial refrigeration, and something about business as well."

"We hire him on commission and give him a modest drawing account. We have an understanding at the outset that he is to receive his commission on the net amount of the sale."

HOW HE'S PAID

"This means that he receives payment only on the actual amount of cash represented in the deal. If he sells a job for \$2,000 and takes in \$1,000 worth of used equipment, he receives a commission on the \$1,000 only."

"If he then sells the second-hand equipment, he receives a commission on that sale, the same as though it were a new sale."

By paying the men on this basis, the company is certain that they are not on the side of the customer when it comes to setting the value on used equipment. It is to the interest of the salesman, as well as the company, to see that the old equipment is taken in at as low a figure as possible.

TRADE-IN PRACTICE

Second-hand units are thus taken in at a price which permits rehabilitation and resale at a profit, or, at worst, no less than an even break.

"Because our salesmen realize that the more used equipment we have on hand the less we will give for the next offered, they are constantly on the lookout for prospects for second-hand equipment," Mr. Whitten pointed out. "Some of the men find they make more money selling used equipment, as prospects for these lower-priced units are more numerous."

All men sell both new and used equipment, using the second-hand equipment only when they find that a prospect cannot afford or is unwilling to buy a new unit.

Regular sales meetings keep the men informed and thoroughly familiar with the used equipment on hand, so that they are able at all times to suggest specific units to prospects. One of the men, who specializes on used equipment, keeps a full record of stock at all times, for the convenience of the other men.

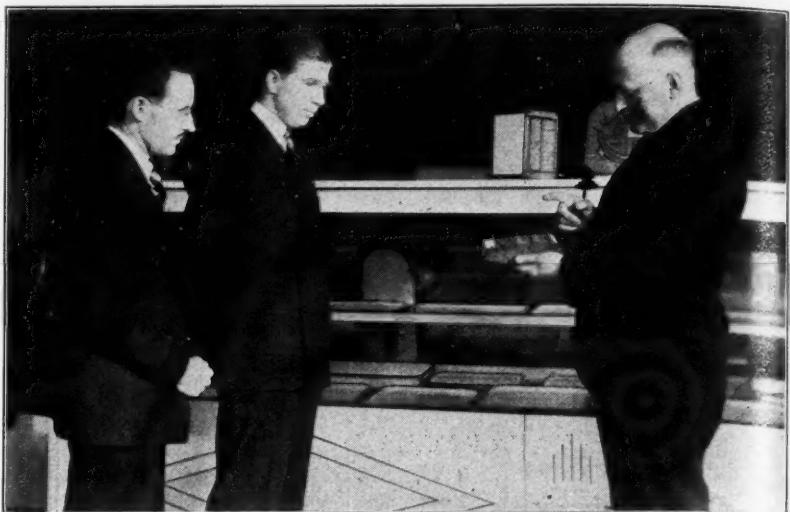
Big Ice Cream Truck Cooled By Dole Plates And Kelvinator Unit

SIOUX CITY, Iowa—Dole plates hooked up to a 1-hp. Kelvinator compressor are used in a 380-gallon ice cream body being used in this territory by the Borden Co. Produce Division.

During the 12 to 14-hour day, in which there are approximately 75 door openings, temperatures in the body range from approximately 5° below zero to 3° above zero when the outside temperature is 95° F. The body was built by Batavia Body Co., Batavia, Ill. It is equipped with 6 inches of Dry-Zero insulation in roof, sides, and ends, and with 6 inches of cork in the floor.

Inside dimensions of the body are: length, 82 inches; width, 60 inches; height, 37 1/2 inches.

New Commercial Distributor



W. C. Shook (right), new distributor of Norge commercial refrigeration equipment in Omaha, gives Messrs. Hendrickson and Cooke of his staff some pointers on commercial refrigerator construction.

Vicana To Quick-Freeze Pineapples In Cuba

HAVANA, Cuba—Vicana Foods, Inc. is completing a plant here for quick freezing pineapples. This plant is scheduled to commence operation about April 1, and "Vicana Brand" Z Pack pineapples probably will reach the American market in May.

During the first season of the plant's operation, standard circular slices will be packed in two sizes of containers: 1-lb. for the retail trade and 10-lbs. for hotels, restaurants, etc.

The quick-freezing process will permit the canning of field-ripened fruit, which is claimed to be far superior to fruit picked green and allowed to ripen during and after shipping.

New York City Lipman Office Moves To Larger Quarters

NEW YORK CITY—Local office of New York Lipman Corp., subsidiary of General Refrigeration Corp., has moved from Room 510 to Room 639 of Grand Central Palace.

Reason given for the move was the need for larger display space in the office itself. In addition, the new quarters provide space for shop and storage purposes.

H. A. Sheehan, branch manager of New York Lipman Corp., is in charge of the new office.

Shook Refrigeration Is Subdistributor For Norge In Omaha

OMAHA, Neb.—The Shook Refrigeration & Engineering Corp., formerly known as the Shook Refrigeration Co. of Omaha, has been appointed subdistributor for Norge commercial refrigeration and air-conditioning equipment, operating under the A. Y. McDonald Mfg. Co., local firm.

The Shook company now has charge of Norge commercial refrigeration sales and service in Nebraska and the western part of Iowa.

Officials of the company are: W. C. Shook, president; James H. Cooke, vice president and secretary; R. L. Hendrickson, treasurer and chief engineer.

Mr. Shook has been engaged in refrigeration work in Omaha for the past six years, during which time he was branch manager for the Ed Friedrich Sales Corp.

Mr. Cooke also has been active in the local commercial refrigeration business, and Mr. Hendrickson has been in the air-conditioning and refrigeration industry for the past 13 years.

Sales meetings are now in progress in various cities through Nebraska, and the Shook and McDonald companies are cooperating with dealers on plans for the coming selling season.

10 POINTS OF TEMPRITE SUPERIORITY

PERFORMANCE

No. 2

Temprite Multiple System Fountains cool water instantly—the first drink is always cold, regardless of inlet temperature. No waste of time or water. Wall models No. 122, 128 and 135 can be supplied with combination bubbler and glass filler. Models No. 128 and 135 will deliver a continuous stream of water cooled from 80° to 45° and 80° to 40° respectively. Recommended where pitchers or jugs are filled or where load is heavy. And—Temprite saves up to 60% operating cost over other types. Write for full details of 10 points of Temprite superiority.

TEMPRITE PRODUCTS CORP.

55 PIQUETTE AVE., DETROIT, MICH.

"That's what I call SERVICE!"



All the way along the line, the manufacturing and distribution operations behind V-Meth-L and Extra Dry

Esotoor are geared to the highest ideals of Service. Exceptional purity of product, combined with swift, dependable delivery from the nearest of our many conveniently located stock branches represents service to you of the greatest importance. In addition, the long-time experience of our Chemical Engineers in the problems of handling liquid refrigerants enables us to advise you on the safest, simplest, quickest methods of dehydrating and transferring. You get better service, and you can give better service—with Virginia Smelting products.

V-METH-L AND EXTRA DRY ESOTOOR

PRODUCTS OF
VIRGINIA SMELTING
COMPANY
WEST NORFOLK, VA.

Mississippi Farmers Urged To Use Storage To Cut Pork Losses

JACKSON, Miss.—Utilization of cold storage facilities as a means of preventing meat losses, which in the case of pork alone run into thousands of pounds annually through spoilage, is being urged by Mississippi state and county extension agents.

While farmers try to butcher on cold days, often the temperature rises in this southern state before the curing process is complete, and large losses result.

Pointing out that curing is a race between the multiplication of spoilage bacteria in the curing pork and the penetration of preserving salt, Paul F. Newell, extension animal husbandman of Mississippi State College, said:

"The best means of insuring against meat losses is to maintain a steady temperature of 36 to 40° F. during the curing period. This can be done in the storage plant where temperatures can be controlled."

A survey conducted by Mr. Newell reveals that Mississippi farmers are making increased use of cold storage facilities, about 2,000,000 lbs. of pork being cured annually in 47 plants.

Mississippi storage plants generally offer three kinds of curing, including the plain or salt cure, the sugar cure, and sugar cure smoked and wrapped. Many farmers smoke and wrap their own meat after it has been cured properly.

Next to temperature, Mr. Newell said, sanitation is the most important factor. Cleanliness in butchering and preparing meat for curing cuts down the number of spoilage bacteria and lessens the chance of spoilage. County agents are furnishing Mississippi farmers with detailed information on curing.

Frozen Malted Milk Unit Introduced

NEW YORK CITY—Production of a frozen malted milk machine listed at a retail price of \$150 has been announced by the Frozen Malted Milk Machine Co. here.

The unit freezes the malted milk mix by electric refrigeration and whips it by an electric motor. Complete with coil and valve, the machine is sold ready for installation. It is a counter model occupying 15 inches of counter space, with clearance space for all standard size glasses, and rippled conical top.

In addition to frozen malted milk, the machine also makes ice cream, frozen custard, ices, and similar frozen foods.

Deluxe models priced at \$200 are included in the line.

Eastern Food Store Chain Installs 28 Par Units

DEFIANCE, Ohio—Three Par condensing units manufactured by Modern Equipment Corp. here have been installed in Plant No. 29 of the Food Fair, Inc., Baltimore, reports W. C. Allen, vice president of Modern Equipment Corp. in charge of sales.

Union Premier Food Stores, Inc., Philadelphia, operator of the Food Fair chain, has installed a total of 28 Par condensing units in its stores in the last six months, Mr. Allen reports.

A standard installation includes two 2-hp. condensing units and one 3-hp. condensing unit.

Cutler-Hammer Office In Cincinnati Moved

CINCINNATI—Cutler-Hammer, Inc., is moving its Cincinnati office to the American building at Central Parkway and Walnut St. here.

The new office, with its improved location and facilities, is expected to provide a better service for customers in this area, says M. C. Steffen, Cutler-Hammer's Cincinnati manager.

The office handles the complete Cutler-Hammer line, in addition to providing contact with the company's distributors of motor control, safety switches, and service entrance equipment.

Kold-Hold Co. Adds To Heat-Exchanger Accumulator Line

LANSING, Mich.—Kold-Hold Mfg. Co., manufacturer of plate-type evaporators and other refrigeration equipment, recently announced an addition to their line of heat exchanger accumulators.

The uses of the heat exchanger accumulator in soda fountains, frozen food cases, ice cream cabinets, and other commercial refrigeration systems permits the effective use of 100% of evaporator surface without frostback, Kold-Hold engineers claim.

A 12% increase in condensing unit efficiency is also claimed for the use of the heat exchanger due to the reduction "flash gas," which, according to Kold-Hold engineers may amount to one-third of the refrigerant entering the coil.

Heat of the liquid refrigerant, from compression, in passing through the exchanger increases the temperature of the suction vapor and permits it to return to the compressor in gas form with very little increase in superheat, which according to Kold-Hold engineers prevents possible damage of "slugging" to the compressor valves.

The new exchanger, which is described in bulletin No. 112, has a capacity of $\frac{1}{4}$ ton with methyl chloride or SO_2 and $\frac{1}{8}$ ton with Freon-12. It is not intended for use with ammonia.

Undabar Bottle Coolers Feature 'Flowing Bath'

ST. LOUIS—Undabar Cooler Corp. has announced its 1938 line of Undabar bottled beverage coolers incorporating the "flowing bath" feature, and powered by a General Electric $\frac{1}{2}$ -hp. refrigerating unit.

Two models comprise the line, 600-38 having a bottle storage capacity of 240 standard 12-ounce bottles standing upright, and DD-38 having a capacity of 240 standard 12-ounce bottles standing upright in the wet compartment plus 144 in the precooler compartment.

Both models are bonderized, with white dulux finish, stainless steel sliding lids, adjustable temperature control, and direct expansion cooling coil.

The flowing bath consists of a separate motor-driven pump, mounted on a separate frame inside the tank, with the pump immersed in the water bath and operating through the unit control. The entire bath is circulated every 10 minutes, keeping a uniform temperature throughout.

Overall dimensions of both models are: length, 74 $\frac{1}{2}$ inches; height, 33 inches; width, 29 $\frac{1}{4}$ inches. Wet storage compartment of each is 70 inches long, 15 inches high, and 26 inches wide. The precooler compartment of model DD-38 is 43 inches long, 12 $\frac{1}{4}$ inches high, and 24 $\frac{1}{2}$ inches wide.

Wet compartment of each holds 80 half gallons, lying flat, or 56 half gallons, standing upright.

With bottles put in at 100° F., the one-hour peak cooling capacity of the Undabar coolers, i.e. bottles per hour cooled to 40°, is 39 bottles. With bottles put in at 80°, the capacity increases to 73 bottles per hour.

Both rates are figured with room temperature the same as that of the bottles when put into the unit.

Extra equipment available with the coolers includes drinking water cooling coil, glass fillers, dry compartments, bubblers, separators, brass drains, stainless steel drains, and three-inch feet.

The feet are for coolers which are not installed under counters.

Completely self-contained, the Undabar units need only to be plugged in for operation.

They are sold by General Electric distributors and dealers.

Emahizer-Spielman Handles Kelvinator

TOPEKA, Kan.—Emahizer-Spielman Furniture Co. has been appointed exclusive Kelvinator appliance dealer here by Richards & Conover Hardware Co., distributor with headquarters in Kansas City, Mo. R. B. Beasley is the store's appliance department manager.

NOW!
Let's Get Down
to CASES..

McCALL Scores A MAJOR Triumph with their UNIQUE 3 STEEL CASE IN ONE PRINCIPLE OF CONSTRUCTION



- Porcelain exterior. • Porcelain-display interior. • "No Glare" lights. • "Loxit" rubber door-roller bearings. • 3 front glasses — replaceable unit assembly. • And many other sales-getting features.

DEALERS! EARN EXTRA PROFITS because . . .

McCall builds but ONE line of QUALITY Cases . . . McCall has no second or third competitive lines so common in the industry . . . By this system of concentration on ONE LINE . . . the use of ALL WELDED STEEL . . . and modern production methods McCall offers you . . . truly outstanding LOW PRICES.

ALSO A COMPLETE LINE OF REACH-IN STORAGE CABINETS

McCall

REFRIGERATOR CORPORATION
Hudson, New York

Write for Free Circular about
"3 STEEL CASE IN ONE"

Name	_____
Street	_____
City	_____
State	_____

Air Conditioning

Conditioning Of Dry-Cleaning Plants Found Great Help To Employe Health & Efficiency

DENVER—The modern dry-cleaning establishment offers a lucrative field for air-conditioning equipment, according to the experience of Electric Products Corp. which has installed Carrier systems as part of the modernization of three large firms here.

An efficient air-conditioning system presents many advantages to the cleaner who wants to operate on an efficient basis, says Harry Pierce, who was in charge of the installations. Best plants in the cleaning industry are characterized by good lighting, modern cleaning equipment, regular hours for employees, and air-control systems which will remove the hot, moisture-laden, odorous air.

When remodeling plans were being made by the New Method Cleaners & Dyers Co., executives realized that segregation of departments into small rooms would create an alarming foul-air condition.

It was decided that a Carrier unit should be installed, using 100% fresh air at all times, to provide the various dyeing, spotting, silk-finishing, and leather-cleaning rooms with an air change twice each minute. A

special humidity control on the line serving the rug-drying room makes it possible to restore a normal humidity to this department when necessary.

Since the air-conditioning system has been installed, the percentage of headaches and ills induced by bad air conditions has been reduced to a minimum, the company reports. No cases of nausea caused by the odors of evaporated fluids have been reported since the equipment was put in use.

Cost of the entire system, including condensing unit, cooling coils, conditioning unit, and ductwork, was reported as approximately \$12,000.

The Finer Cleaners & Dyers, located in Englewood, Colo., a suburb of Denver, found air conditioning essential to its requirements, because all operating machinery is located on one floor and a school for apprentice cleaners is located in the basement.

Due to the absence of partitions, an extremely simple air-handling system was used, introducing the air to both the first floor and basement at the front of the building, and taking out discharge air at the rear.

A spray-type conditioning unit is located on the side of the building, instead of on the roof, making it easily accessible for service and adjustment.

Another air-conditioning installation was made in the building occupied by the Vienna Cleaners, where an air change of once each minute is provided in the two main sections of the building. Air distribution has been arranged in a manner that prevents odors from gaining access to the waiting rooms, reception rooms, and offices.

Air coming from the conditioning system is held at a low humidity, as steam-operated machinery in the building constantly raises the moisture content of the air.

'Sampling' Bank Offices With Room Coolers Leads To Big Job

TOPEKA, Kan.—An air-conditioning "sample" made such a hit that today the Central National Bank here, the city's leading bank, has installed a year-around central station system for the entire bank.

Bank officers "sampled" air conditioning during a hot summer with small, portable room coolers. Following the success of the "sample," they decided last year to install immediately an entire Carrier central station system in the 45-year-old building.

Where previously the directors' and officers' room were the only spaces air conditioned, today the system is extended to the main banking room, executive offices, directors' room, work spaces and clerical offices.

Conditioning Boon To Soda Fountains; Profits Increase, Sanitation Better

NEW YORK CITY—Progressive operators of soda fountains have been quick to realize that air conditioning is one answer to the demand for greater sanitation that is coming from public health officials all over the country, reports to the News indicate.

New laws have been passed and old ones stringently enforced; soda fountain proprietors are faced with prospects of fines, ranging from \$1 in New York City to \$100 in Pasadena, Calif., and suspension of licenses if they fail to comply.

Soda fountain operators who have taken advantage of air conditioning as an aid to sanitation have been rewarded with soaring profits. Bernard Feldman, owner of two drug stores on upper Broadway, Manhattan, reports that:

"Business doubled last summer with my air-cooling system. Although the drive for sanitation was not so acute then, cleanliness was my main object in purchasing equipment. It's practically impossible to run a soda fountain decently on hot summer days. A customer may eat a piece of cake when flies have been shooed away from it, but the customer won't come back."

"In three months, the increased business at the fountain had more than paid for the installation. It cost me about \$250 a summer to run the unit, but now I take this amount in clear profit in a week's time."

Four reasons why air conditioning has proved to be a boon in soda fountain sanitation are cited by Mr. Feldman. They are:

1. It cleans the air of dust.
2. It keeps out odors.
3. It helps prevent the spread of communicable disease.
4. It keeps out flies. "We have more flies in winter, when we're using the heating system, than we

have in summer, now," reports Mr. Feldman.

Another Manhattan drug store using air-conditioning equipment is one owned by S. Fisher, located in Carnegie Hall, Manhattan. In this system, exhaust fans are used to carry heat away from hoods over coffee urns, hot plates, and other sources of heat. Even with this excessive heat removed, air-cooling equipment of 7½ tons refrigerating capacity is required to handle the heat load in the store.

In many soda fountains, where floor space is limited, suspended-type air conditioners are hung at a convenient point, usually over the door. Condensing units installed in the basement of the building are connected to the conditioners by refrigeration lines. With this type of system, no duct work is necessary, and the equipment may easily be moved to another place if the business moves.

A survey made by Kelvinator Corp. shows that a 34% increase in soda fountain patronage results after air-cooling equipment has been installed. The average check per person, a vital factor in the success of this business, was increased 16%.

Soda fountain owners reported that employee efficiency increased 5%, while laundry and janitor expense decreased 12%, and good will soared 30%.

Chain operators of drug stores in New York City have installed air-conditioning equipment in key stores located near Times Square and New York university.

One soda shop operator reports that air conditioning acts as a "come-on" for new patrons. "We leave the door open," he says, "and the cool air blows outside. The people going by pause to find out where the cold air is coming from, and it brings them in."

Oil Burner Industry Defeats Fuel Tax

BEAUMONT, Tex.—Reed Co., local York Ice Machinery Corp. distributor, is installing a \$100,000 air-conditioning system in the Hotel Beaumont here, and will have it completed by June 18, according to the contract.

The Black Cat coffee shop and the barber shop in the hotel already are air conditioned, and the new unit to be installed will add an additional refrigeration capacity of 228 tons daily, extending the air conditioning throughout the entire building from roof garden to basement.

Water Works Association To Study Conditioning

NEW ORLEANS—One entire session of the fifty-eighth annual convention of the American Water Works Association, to be held here April 24 to 28, will be devoted to discussion of the relation of air conditioning to municipal water supplies, one of the water industry's newest problems.

Several of the association's committees have been collecting data on this subject and will present the results of their studies at this meeting.

Watters To Head Conditioner Department Of Airflow Co.

NEW ORLEANS—Douglas S. Watters has been named manager of the air-conditioning and heating department of the Airflow company, 815 Baronne St.

A. J. Sibben Heads Norge Air-Conditioning Outlet

MILWAUKEE—A. J. Sibben, for many years general manager of the May Oil Burner Co., heads the Norge Heating & Appliance Co., which has opened at 825 N. Broadway here to specialize in the sales and engineering of Norge air conditioning and heating equipment.

The Distributor Who Sells the Copeland REFRIGERATION LINE

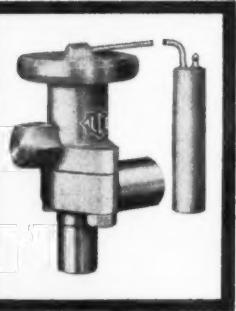
IS BUILDING GOOD-WILL FOR YEARS TO COME!

It is just good business foresight to sell your customers a quality-built Copeland product. Whether you sell Copeland Household or Commercial Refrigeration, you are wisely building up a backlog of long-time customer satisfaction that will pay you dividends in continued patronage for many years.

Write for Sales Plan
COPELAND REFRIGERATION CORPORATION
Sidney, Ohio

THERMO VALVES

Confine Refrigerant "SWING" and Give You Higher Efficiency



Interesting to a market trader, but zig-zag lines are wasteful when you chart refrigerant flow.

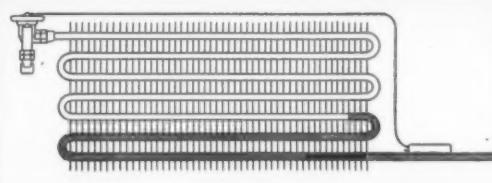
• The high type of control provided by Alco Thermo Valves limits the swing of the refrigerant to the smallest possible area, and as a result gives increased capacity and highest efficiency to any evaporator installation. Scientific tests have proven that the correct combination of Alco Controls and coils can increase the capacity of a standard evaporator as much as 25 to 60 per cent. This means a saving in both installation and operating costs.

Ordinary thermostatic expansion valve control is illustrated in the diagram of an evaporator coil. Notice the wide variation in the line of complete evaporation—refrigerant may return to the compressor one instant and the next be in only part of the coil. Such swings are wasteful, inefficient, costly. Alco's type of control, also shown, decreases the running time of the compressor, due to the increased capacity of the evaporator.

Alco engineers have tested and studied practically every type of standard evaporator—their experience in recommending the correct application of Alco Thermo Valves to any installation is always available to you.

Alco Thermo Valves give accurate, trouble-free service throughout their long life. Thousands are in operation on every type of refrigeration and air conditioning installation throughout the world.

Write to Alco for bulletin and information on the engineered refrigerant control of Alco Thermo Valves.



ALCO VALVE COMPANY, Inc.
2620 BIG BEND BLVD.
ST. LOUIS, MISSOURI

ENGINEERED REFRIGERANT CONTROLS FOR HIGHEST EVAPORATOR EFFICIENCY



Chicago Tribune Tests Show How System Controls Air Bacteria & Dust Content

CHICAGO—Tests made in the Chicago Tribune building from Jan. 8 to Feb. 10 demonstrate how the air-engineer is able to control not only temperature and humidity, but the carbon dioxide and bacteria content of the air as well, according to a recent engineering report.

The Tribune structure includes its printing plant and complete newspaper layout, radio station WGN, and a tower structure filled with offices, all of which have year-around air conditioning.

Equipment serving the special needs of newspaper press rooms, radio studios, and the tastes of a wide variety of office tenants, provides a working demonstration of the flexibility possible in a modern air-conditioning system.

The engineering report showed that the system, which has been operating since the summer of 1934, and, in the radio section, since it was opened Oct. 1, 1935, is supplying air three to four times cleaner than the outside atmosphere, a ratio of moisture content best adapted for health, and temperature that the authorities report is "just right."

The air, incidentally, is changed three times as rapidly as ordinarily is considered necessary.

Four factors were observed in studying the installation and its effects on human comfort and efficiency, the engineers reported. These were air temperature, relative humidity, bacterial count, and carbon dioxide content.

The first two factors, according to the engineers, should be considered together. Feelings of warmth and comfort depend not on temperature alone, but also on the moisture content or relative humidity of the air. Dry air, even though the temperature may be comparatively high, feels colder than moist air at a lower temperature.

Furthermore, dry air results in excessive evaporation of moisture from the skin surfaces of the body and respiratory tract. Thus humidification becomes one of the most important functions of the air-conditioning system when one considers how little moisture cold air contains.

Superfex Introduces 3 New Conditioners

CLEVELAND—Three new models of the Superfex oil-burning warm air conditioner, with heating capacities of 65,000, 100,000, and 140,000 B.t.u., respectively, at the registers, have been announced by Perfection Stove Co.

New models incorporate a new economizer that provides longer flue travel and increased efficiency, says C. H. Foulds, sales manager of the company's furnace division. All Superfex air conditioners, he says, operate on the high-low principle, the oil burner automatically synchronizing with the blower, providing continuous circulation of conditioned air at all hours.

Kerrihard Heads Connelly Air-Conditioning Dept.

SEATTLE—Glenn Kerrihard, manager of the heating department of a Seattle department store for the past three years, has been appointed manager of the heating division of F. B. Connelly Co., Norge distributor in Washington and Oregon, according to an announcement by Kenneth Connelly, vice president and general manager.

Before becoming connected with the local department store, Mr. Kerrihard was associated with a national oil burner manufacturer for 15 years.

Pasadena Building Moves To Get Air Cooling

PASADENA, Calif.—Plans for the installation of a \$125,000 complete air-conditioning system with a series of cooling units in the Pacific Southwest building here are being drawn by E. L. Ellingwood, mechanical engineer of Los Angeles, for the Pacific Southwest Realty Co., Los Angeles.

Michigan Petroleum Show To Feature Air Conditioning

MT. PLEASANT, Mich.—Air conditioning, along with household appliances, will be among features of the first annual Michigan Petroleum Exposition scheduled for July 26 to 31.

Sponsored by the local chamber of commerce, theme of the show will be worked around "Home, Transportation, and Recreation."

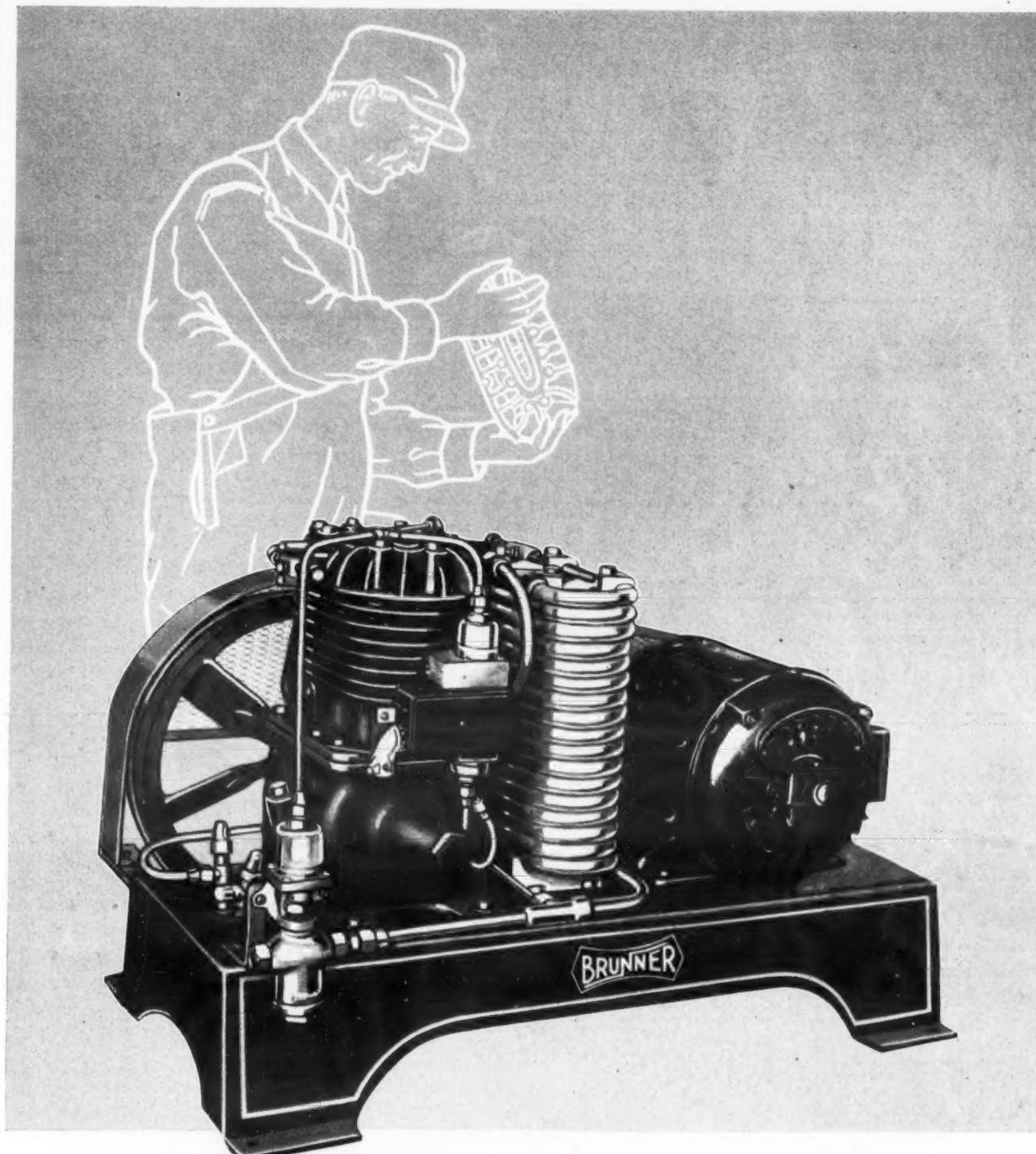
Drafts Minimized In New Streamlined Train

SAN FRANCISCO—An air-conditioning system which delivers air at the rate of 1,800 to 2,500 c.f.m., yet which minimizes drafts by means of a patented method of distributing air through small holes in the sides of baffled ceiling panels, has been installed in the City of San Francisco, new streamlined train operat-

ing between here and Chicago under joint ownership of Southern Pacific, Union Pacific, and Chicago and North Western railroads.

Each sleeping room and berth has a circulating system which may be regulated by the occupant. In all rooms where smoking is permitted, a separate exhaust duct is arranged.

The Freon system used is powered by the same two 300 kw. Diesel-electric engine generators which supply the 17-car train with lighting. These generators are located in the auxiliary engine-baggage-dormitory car.



BRUNNER CASTINGS THROUGHOUT ARE ACTUALLY HEAVIER...FOR ADDED RUGGEDNESS

It's just common-sense engineering to add a "factor of safety" wherever performance is a vital consideration. But it is seldom you find commercial designs protected by so large a margin as you find in Brunner equipment. "Over precautious," you might term Brunner engineering. Yet, experience has proved its value. Brunner castings, for example, are unusually heavy, far exceeding ordinary performance requirements. This is especially true of the super-duty castings of the compressor. Thanks to this rugged difference, Brunner Refrigerating and Air Conditioning units give a good many extra years of trouble-free service... Air and water-cooled models ranging from $\frac{1}{4}$ to 15 horsepower... Better get the whole story at once.

Brunner Manufacturing Company, Utica, N. Y., U. S. A.

IT'S **BRUNNER**
FOR *economical* SERVICE

AIR CONDITIONING & REFRIGERATION NEWS

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Trade-In Plans Analyzed

R ALPH CAMERON, general appliance sales manager for the Nash-Kelvinator Corp., recently made an extensive survey of his dealers. He found that most of them were doing a profitable business on the sale of trade-ins, which comprised about 10% of their total sales of new units.

Whether or not this figure is applicable to the great run of the nation's dealers is open to question, but it seems as good as any which has yet been offered. And when trade-ins reach the proportion of 10% of the total sales, they must be recognized as a problem.

Dealers Consider It Their Most Urgent Problem

Outside of New York (where the I-can-get-it-wholesale-for-you boys operate, using the display rooms and sales demonstrations of legitimate dealers to merchandise their cut-price goods) the 1937 and 1938 conventions of dealers and dealer bodies have nearly all considered the trade-in problem their most important subject for discussion.

Agitation for a "blue book" of stated trade-in values on specific refrigerators—something like the one employed by automobile dealers for evaluating used cars—has come up from time to time. But manufacturers have discouraged the idea for reasons of their own.

Federal Refrigerator Corp. Will Issue Blue Book

However, Federal Refrigerator Corp., 57 E. 25th St., New York City, which specializes in rebuilt equipment, has announced its intention to publish a "Blue Book" of over 100 pages within the next few weeks. The trade-in prices listed will be those which Federal

will pay. The officials of this company assert that they will buy all the units they can get at the prices offered.

The California Plan, as practiced in San Francisco under the direction of Clarence F. "Sandy" Pratt, president of the California Refrigerator Co., has been working successfully for a number of years, according to reports from the Pacific Coast.

Mr. Pratt's firm, a refrigeration supply jobber, serves as arbitrator in the matter of trade-ins for many dealer groups in northern and central California.

This company either submits a suggested schedule of allowances for use by a certain group of dealers in a particular district, or else one of its representatives appraises a certain refrigerator for any bona fide dealer without obligation to the retailer.

First Offer Applies For All Dealers

C.R.C. will make a cash offer for any refrigerator, regardless of condition, to the first dealer asking for a bid. To any other dealers working on the same prospect, C.R.C. quotes the same price, though it never names the other dealers interested in the deal. The company will make a bid on a prospective trade-in even though the dealer is going to recondition and sell the unit himself. C.R.C.'s chief function in this respect is to establish a value on any given box.

Any refrigerators which C.R.C. buys through deals of this kind, it reconditions and sells.

Mr. Pratt suggests that other members of the national supply jobbers association handle this type of work in their respective localities.

A schedule of trade-in allowances suggested by C.R.C. follows:

Mechanical Refrigeration Trade-In Allowances

Size	2 Years Old or Younger	3 to 5 Years Old		Over 5 Years Old	
2 cu. ft.	\$15.00 to \$20.00				
4 to 5 cu. ft.	20.00 to 30.00	\$15.00 to \$20.00		\$10.00 to \$15.00	
6 to 7 cu. ft.	22.50 to 32.50	16.00 to 30.00		10.00 to 15.00	
9 to 12 cu. ft.	30.00 to 37.50	20.00 to 30.00		10.00 to 20.00	

These suggested allowances are raised 10% on well-advertised makes like Frigidaire and Kelvinator, and 15% on General Electric because of higher original price. They should be lowered if the refrigerator is in poor condition.

Here is the ice box trade-in schedule suggested by C.R.C.:

Ice Box Trade-Ins

25 lb. capacity—any age.....	\$2.50
50 lb. capacity—any age.....	3.50
100 lb. capacity—2 or more years old.	5.00

Ice box trade-ins should not be removed from owner's premises either for resale or for destruction, except in the case of the newer types sold within the last two years. Five to ten dollars may be paid for these, and they may be removed and resold.

Associations and Bureaus

Attempt Control

Several refrigeration bureaus and associations have also set up plans for handling trade-ins. Some of these are:

Electric Refrigeration Bureau of El Paso, Tex., established a code providing for a maximum trade-in allowance of \$5 on any ice box

offered in trade for an electric refrigerator whose delivered cash price does not exceed \$150. A \$10 allowance is granted when price of the unit being purchased exceeds \$150.

Members of the Utica and Mohawk Valley Radio and Appliance Dealers Association have agreed on an allowance of \$5 on wooden ice boxes and \$7.50 on steel ones.

Electrical Association of Philadelphia has recommended to distributors that they follow the "sample" trade-in allowance contract established by the association. This contract establishes maximum trade-in allowances, but provides that these allowances may be exceeded by a dealer if he himself has appraised the unit as worth more than the stipulated allowance and if he has received the approval of his distributor to grant the larger amount. Distributors are not required to follow this contract, however.

Electric League of Topeka, Kan., has set and maintained a maximum appliance trade-in allowance of \$10.

Some Distributors

Assume Responsibility

Distributors have, in some instances, assumed responsibility for control of trade-ins among their dealers.

The following trade-in terms have been set by Trilling & Montague, Norge distributor in eastern Pennsylvania, with headquarters in Philadelphia:

Maximum allowance on ice boxes varies from \$5 to \$35 on new refrigerators ranging in price from \$139.95 for the 4-cu. ft. box to \$489.95 for the 12-cu. ft. box. Allowances on used mechanical refrigerators vary from \$20 to \$100 on these same models.

Trade-ins are permitted only on models of the current year, and

allowances can be granted only on actual trade-ins, when the dealer actually takes possession of the unit being traded in.

In cases where a dealer feels that a larger allowance than that provided in the schedule is warranted, he must have his distributor make an appraisal of the unit to be traded in.

The original price-control contract signed by Warren-Norge Co., metropolitan New York Norge distributor, under the Feld-Crawford act provided for a fixed maximum trade-in allowance equal to 10% of the value of the new article to be purchased.

This clause has been revised to stipulate that the allowance shall not exceed the amount for which the dealer can currently resell the used unit being traded in.

The new contract also estab-

lishes a set maximum percentage on non-mechanical refrigerators offered in trade.

Voluntary Agreements Between Dealers

Dayton, Ohio, Norge dealers have voluntarily established the following maximum trade-in allowances, all based on the distributor's list price of the appliance to be purchased: ice boxes, up to 5%; mechanical refrigerators, up to 20%. Exact amount of allowance depends upon dealer's evaluation of the used appliance.

A group of Denver appliance dealers have agreed upon the following schedule of trade-in allowances for 17 "standard makes" of mechanical refrigerators. (See table at bottom of column.)

"Standard makes," as decided upon by these dealers, were: Frigidaire, General Electric, Westinghouse, Kelvinator, Norge, Leonard, Stewart-Warner, Crosley, Grunow, Hotpoint, Electrolux, Gibson, Mayflower, Fairbanks-Morse, Sparton, Coldspot, Montgomery Ward.

Later, the code was revised to allow Electrolux dealers approximately 25% greater trade-in allowances because of Electrolux's 25 to 30% higher original price.

The allowance for any refrigerator other than those listed as "standard makes" is 15% less than the allowance indicated in the table (which will be found at the bottom of this column).

Ice box allowances under the Denver code are as follows: top icers, \$2.50; side or front icers, \$5; metal boxes, \$7.50.

How a Trade-In Code Can Be Administered

Administration of the code is vested in a six-man governing board representing the four types of retail dealerships in the Denver area, i.e. specialty shops, furniture stores, utilities, and department stores. The manager of the Retail Merchants' Bureau is chairman of this board, and there is one member-at-large.

Code violators are warned on their first offense. If any dealer offends a second time, his distributor will be requested to disenfranchise him within three days after the board's decision. If the distributor fails to comply, other dealers have agreed to discontinue that distributor's line.

No Uniformity—But Plenty Of Thinking

As you can see, there is little evidence of uniformity of thinking or planning on the part of the nation's refrigeration sales organizations on this subject.

Nevertheless, there are a number of sound, workable ideas outlined above, and all are worthy of careful study on the part of dealers, distributors, and associations in districts where trade-in control has not yet been established.

Denver Code Standard Trade-In Allowances

Year	Cu. Ft. Size of Mechanical Refrigerators											
	3	4	5	6	7	8	9	10	11	12		
1936	\$40.00	\$55.00	\$65.00	\$75.00	\$80.00	\$85.00	\$95.00	\$110.00	\$120.00	\$130.00		
1935	36.00	50.00	58.00	70.00	72.50	75.00	85.00	100.00	110.00	115.00		
1934	30.00	40.00	48.00	55.00	60.00	62.50	70.00	80.00	87.50	95.00		
1933	22.50	32.50	38.00	45.00	48.00	50.00	55.00	65.00	70.00	75.00		
1932	16.00	22.50	27.50	30.00	32.50	35.00	37.50	45.00	48.00	52.50		
1931	10.00	12.50	15.00	17.50	20.00	21.00	22.50	25.00	27.50	30.00		
1930 and earlier	Same scale as for 1931 models.											

LETTERS

A Conditioner To Spray Medicine Into Room?

1713 Toronto St.
Regina, Sask., Canada

Editor:
I suffer terribly with bronchial asthma and this is to ask you to kindly put me in touch with a firm that manufactures air conditioners with some sort of dispensers suitable to the use of drugs for the purpose of spreading the aroma in the apartment—where the machine is located.

I understand that machines of this sort are used in England and feel certain that you know of such in America.

D. BLAIS

Peerless of America, Inc.
515 West 35th St.
Chicago, Ill.

Publisher:
I think that the 1938 Refrigeration and Air Conditioning Directory is the most complete directory of its type. Your organization should be commended for the work that you put into this splendid book. I am sure that it will be of great value to everyone in the industry, and I shall recommend it whenever possible.

When better things are done Business News Publishing Co. will do them! Your organization has always been aggressive, and the first to supply helpful information to the industry.

I wish you and your organization a continuation of the splendid success that you have enjoyed in the past.

M. W. KNIGHT, General Sales Mgr.

Effective & Accurate

Commercial Refrigerator Manufacturers Association
111 West Washington St.
Chicago, Ill.

Editor:
I am certainly much obliged to you for your letter of Feb. 24 with

Very Handy



Preparing lunch is a step-saving procedure through use of this "elongated refrigerator" installed in one of the new Dewey apartments in the Edgewater Beach hotel, Chicago, as demonstrated by Miss Florence Cannon. The refrigerator is encased in walnut wood, constructed to form a cabinet, with book and knick-knack shelves. Pull-out tray is just above the refrigerator.

'Elongated Refrigerators' Installed In Edgewater Beach Apartments

CHICAGO—A series of 10 "elongated refrigerators," designed to conserve space, increase utility, and add to the beauty of the room, is being installed in the new Dewey apartments in the Edgewater Beach hotel here.

The refrigerators are being placed in the larger apartments, comprising from three to six rooms.

Standard 3-cu. ft. General Electric refrigerators are being used in the project, reports Clarence F. Brown, Chicago decorating consultant who is in charge of redecorating and remodeling the apartments, and designer of the units.

Of the 10 "elongated refrigerators" ordered, five already have been installed, Mr. Brown said.

The refrigerators are encased in wood, constructed in the form of a cabinet with a book or knick-knack shelf. Various kinds of woods are used, depending upon the predominant motif in the individual apartments. A pull-out tray, for serving, is located immediately above the refrigerator.

Reason for installing the refrigerator-cabinet combination unit, according to Mr. Brown, is that it permits placing of the refrigerator in a convenient place, at the same time providing concealment of the unit when not in use, simply by closing the wooden cabinet doors.

In this way, utility of the cabinet itself for storage, book shelves, or other purposes is never lost, Mr. Brown said.

January Conditioning Orders Drop 10%

WASHINGTON, D. C.—Orders for air-conditioning systems and equipment booked by 125 manufacturers during January of this year totaled \$2,655,874, a drop of 10% compared with the \$2,948,246 booked during December, according to figures compiled by Director William L. Austin of the Bureau of the Census, Department of Commerce.

The total of \$2,655,874 for January this year compares with \$4,876,322 in orders booked by the same number of manufacturers during January, 1937.

Statistics for the month are divided into three classifications, the first covering air-conditioning equipment only, the second fan equipment, and the third unit heaters.

Air-conditioning equipment orders were the only one of the three to show an increase during January over December, totaling \$1,257,908, although this was still considerably under the January, 1937, total of \$2,637,948.

Orders for self-contained unit systems totaled \$340,842 during the month, while orders for unit systems not self-contained totaled \$216,789.

Dealer Group Would Tackle Such Problems As 'Overproduction'

(Concluded from Page 1, Column 5) of local chapters should be handled through 12 regional directors, whose territories would correspond to the Federal Reserve districts. These directors are to be selected within the next two weeks.

Purpose of the association is to give a national voice to appliance retailers. First thought was to make it an association of associations; but strong pressure was exerted by many of those who attended the meeting to limit membership to dealers and dealer bodies only.

This would eliminate most of the electrical leagues, associations, and bureaus now functioning in various cities, inasmuch as they usually have utilities and distributors among their members, as well as dealers.

TO ADMIT LEAGUES

It was decided to admit such bodies, however, with the thought that the organization of new local associations should be along strictly dealer lines, and that the dealer members of present leagues and associations might form new groups limited to dealers only. In cities where no organizations obtain, individual dealers may secure membership in the national body.

With Messrs. Atkinson and Poucher presiding, and Joseph A. Dorsey, Long Island Frigidaire and Norge dealer, prominent in the picture, the program was opened early Monday morning by a speech from H. L. M. Capron, managing director of the Northern New Jersey Radio and Electrical Appliance League.

"Big corporations," he said, "can employ specialists in each division of management. The only way dealers can match this set-up is by pooling their efforts and experience."

DEALERS CALLED 'VASSALS'

"To all intents and purposes we are the economic vassals of the manufacturers and distributors. This must be changed—by collective effort.

"We are now standing on the brink of a chasm, at the bottom of which lies plenty of trouble. We must organize for defense, for personal betterment, and for making more money."

Present fair trade laws, he observed, are not working out satisfactorily. They merely say that manufacturers and dealers "may" establish price maintenance contracts. The "may" should be changed to "must," Mr. Capron believes.

"As matters now stand," he declared, "the laws really assess a penalty on the manufacturers which do comply."

FUTURE CONCERN TARZIAN

Martin Tarzian, president of Tarzian Bros., Brooklyn, expressed himself as being deeply concerned over the future of appliance retailing.

"Price cutting makes the dealer a business coward; it tears him down in the eyes of his best friends," asserted Mr. Tarzian.

"Department stores take recourse in private brands because they fear dealers. And as for the dealers—the customer today is setting their retail prices. The manufacturer gets his price on the railroad siding, after that, the price is a dealer problem. They sign up any Tom, Dick & Harry as a dealer, and pit the reasoning of these mental midgets against that of responsible business men. The result is a price chaos."

FEASIBLE RESALE PLANS

Mr. Tarzian praised the Stewart-Warner resale plan under the Feld-Crawford act in New York, under which the manufacturer and distributor set up a fund of \$5,000 for price policing.

He also pointed out that the Maytag washer guarantee does not apply to washers sold at less than list prices—which helps prevent the customer from chiseling down the price.

Cooperation among dealers will help the price situation, Mr. Tarzian avers.

"If I go to a ward leader in New York and want something, why, I'm just one vote to him. But if I go representing an organization of 1,000, I get what I want."

O. Fred Rost, editor of Radio

Retailing, insisted that there is a real need for local retailing groups to have a medium for national expression of their thinking and desires.

"An association of this type," he stipulated, "should work toward eliminating the evil of overproduction by appliance manufacturers."

Mr. Rost asked that the name "Radio" be included in the name of the organization, because of the large number of radio dealers who, he asserted, were not appliance dealers.

Frank Watts of Bennett-Watts-Haywood challenged Mr. Rost's last statement, declaring that his lists of appliance and radio dealers showed about 90% overlapping. Mr. Rost said that his lists showed only 20% overlapping between the two fields.

W. H. Ingersoll, who founded the American Fair Trade League 26 years ago, and who started the Better Business Bureau movement, deplored the sale at cut price of goods to company employees through purchasing departments.

In New York, he declared \$50,000,000 worth of retail business annually is diverted through irregular channels such as these. In Chicago the figure is \$30,000,000; in Los Angeles it is \$22,000,000.

LIST PRICES TOO HIGH?

Great centralized distributing organizations, he maintained, have scared manufacturers away from price maintenance. It was also his opinion that list prices start too high.

"Large corporations," he perorated, "don't breed good citizenship. There is no such thing as independence without property. The farmer and

the retail merchant are the only remaining representatives of the independent business man upon whom the foundation of America rests.

"Retail merchants have never asked the government for a dole for not selling goods."

William Cheyney, managing director of the National Retail Furniture Association, observed that "New York is a great place—where everyone can get what he wants at wholesale, or fake wholesale."

"You should show discrimination as to whom you admit into your organization as dealers," he advised. "A man can't be a furniture dealer and carry one bed and one chair in stock. The same should be true of appliance dealers."

He counseled caution before action, especially in seeking legislation. Also he pointed out the dangers of doing anything which would result in a higher price structure.

DEALER PAYS FOR CRUISES

Homer Davis, president of the Electric Appliance Dealers Association of Philadelphia, told his hearers that the dealer always pays for "cruises and spiffs," either in price or in overstocking, which eventually affects prices.

Mr. Davis moved that a permanent national dealer association be established. He was seconded by J. C. Harding of Washington, D. C. The motion was carried.

New Salem Store Opened

SALEM, Ore.—Douglas R. Yeater and William H. Rush have opened a Westinghouse dealership here under the firm name of Yeater & Rush.

Garneau Gets Crosley Advertising Post

(Concluded from Page 1, Column 4) actor's sales promotion manager. His next position was that of advertising manager for the domestic division. In 1934, he was named advertising manager for the newly created Kelvinator air-conditioning division.

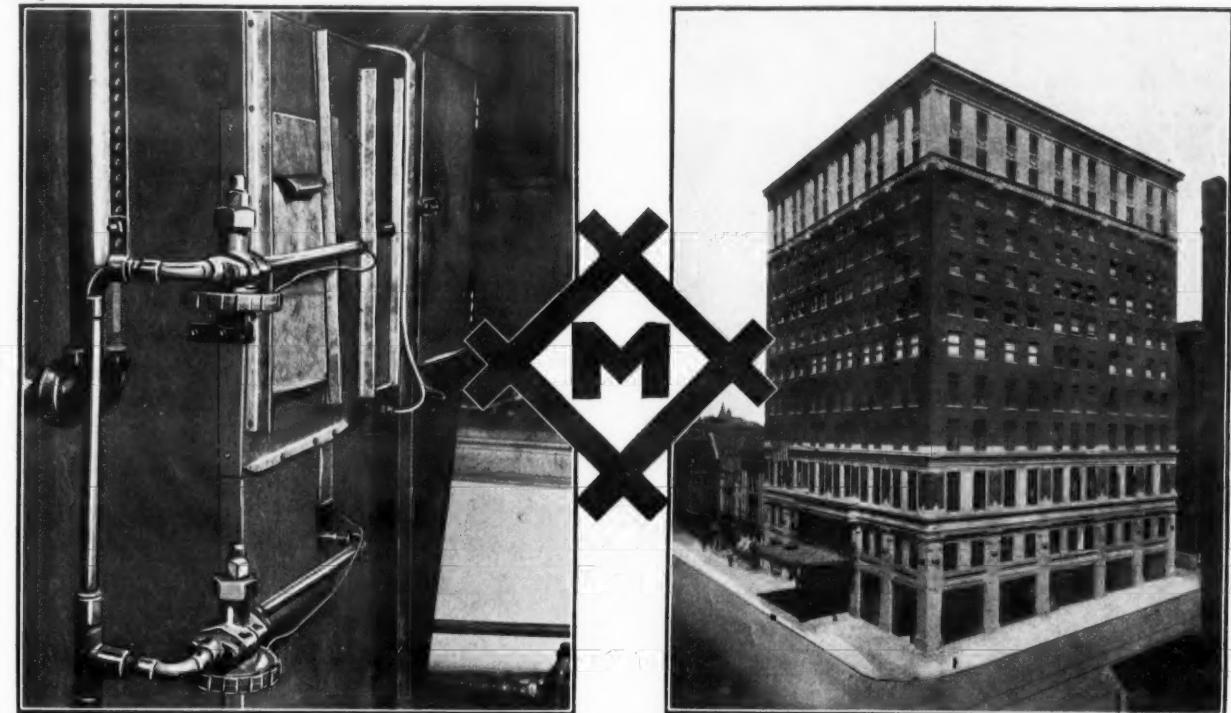
Soon he was promoted to the post of advertising and sales promotion manager for all the company's commercial divisions, a position which he held until leaving Kelvinator to go with Fairbanks-Morse.

E.E.I. Sales Convention Opens Next Monday

(Concluded from Page 1, Column 4) rate department of Northern States Power Co., will talk on "Value and Characteristics of Electric Cooking, Water Heating, and Refrigerator Loads." "Recent Developments in Electric Water Heating" and "Meeting Local Competition in the Refrigeration Field" will be discussed, respectively, by K. M. Robinson, Idaho Power Co., and A. A. Brown, Oklahoma Gas & Electric Co.

"Developing Increased Use of Electricity Among Rural Customers" will be discussed by D. E. Karn, vice president and general manager of Consumers Power Co. S. P. Vecker, Carolina Power & Light Co., will speak on "This Era of Dealer Cooperation," and Sarah Harding Hunter of Cleveland will discuss "Broadening Home Service Activities."

VALVES in the Famous MILWAUKEE ATHLETIC CLUB



Every Original Valve Replaced with an A-P

A Tribute . . . to A-P Valve efficiency, the Air Conditioning system at the famous "M.A.C." has been operating to almost perfect satisfaction for over three years.

E.H. Asberry

*Manager Milwaukee Athletic Club
Valve Trouble was effectively licked at the M.A.C. by early replacement with A-P Thermostatic Expansion Valves. With every Valve an A-P now, the "M.A.C." Air Conditioning is a model of accurately controlled comfort to members and patrons.*

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY-SECOND STREET
MILWAUKEE, WISCONSIN



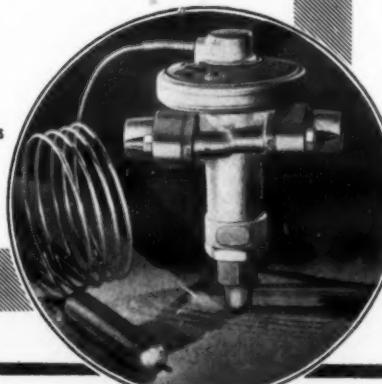
The Refrigeration Service Engineer Says . . .

It doesn't pay to fuss with unsteady and uncertain valves on an expensive Air Conditioning job. Our customers always appreciate our practice of "Switching to A-P Valves . . . Then trouble stops!"

Installation
Milwaukee Athletic Club
Milwaukee, Wis.

Air Conditioning Unit
Pflugradt General Electric
Air Conditioning Company
Milwaukee, Wis.

Valves —



DEPENDABLE THE BYWORD FOR **A-P** CONTROLS

Air Conditioning

Zoned System With Individual Control In Boston's Rice Building Brings 40% Boost In Tenancy Within Short Period

BOSTON—Sacrificing 1% of the total rentable area for air-conditioning equipment proved a good investment for the Rice building here, which now displays the "no vacancy" sign.

Prior to the installation of a complete air-conditioning system, the total rented area in the building was 58,000 sq. ft., or 62% of the available rentable space. After two months of operation, the rented space increased to 67,000 sq. ft., or 72%. Since the installation was completed, rentals have steadily increased until all available space has been taken.

TWO-ZONE SYSTEM

Owing to the construction of the building in the form of an "H" with connecting corridors, the air-distributing system was designed in two zones, one for each wing, for the entire 11 floors.

Conditioned air is introduced to the various offices through ductwork extending from eight apparatus rooms, four in each zone, on the second, fifth, and eighth floors, and the roof level.

Ducts in all offices are carefully furred and plastered, presenting a pleasing appearance and occupying a minimum of space. Each outlet is equipped with a special streamline diffusing grille arranged for three-way deflection, and is equipped with a manually operated volume control.

ALLOW FOR SUN LOAD

In addition, the temperature and humidity in all parts of the building is under control at all times, with special control regulation of areas receiving the maximum sun exposure during the warmest part of each day. Conditioner units handle a total of

6,000,000 c.f.m. of air, of which 25% is fresh air.

Each conditioner unit has three York type C-1500 copper-finned coils connected to the chilled water circulating system; a bank of standard Aerofin heating coils for tempering fresh air in winter; independent Kompak filters designed for low face velocity and maximum cleaning efficiency; one Buffalo Forge fan, having a capacity of 15,000 c.f.m., with specially designed floating base; dry-bulb temperature controls operating by-pass; winter humidity and tempering control.

In addition, the zone conditioners and the penthouses have three York C-1000 copper-finned coils for chilled water circulation, and a fan handling 12,000 c.f.m. of air. Corridors are used as return ducts to serve the zone conditioners, which are connected by ductwork to the main fan units.

BY-PASS USED

All fan units are equipped with Auditorium by-pass, which provides proper humidity conditions, regardless of temperature and heat load, and prevents placing undue load on the cooling system. The amount of air by-passed is automatically controlled by a damper from the recirculated air plenum chamber directly into the fan after first passing through the filters, which further saves on the refrigeration load and current consumption.

The fan system may be operated separately during summer and fall, when no heating or cooling is necessary. During the cooling season the shifting solar load is compensated for by means of two thermostats wired in parallel, with a motorized volume damper which changes its

position with the heat load.

Thermostats in the return airflow and on the outside walls of the building produce compensated control over dry-bulb temperatures at all times.

Approximately 215 tons of Freon condensing equipment, located in the basement of the building, supply chilled water to the air conditioners in the various parts of the building.

Condensing units consist of two York 12½x10 vertical single-acting Freon condensers V-belted to two 125-hp. 230-volt direct-current motors; two 12-inch x 15-foot horizontal shell-and-tube Freon condensers; one 38-inch x 16-foot shell-and-tube water cooler, four centrifugal pumps, direct-connected by flexible couplings to three 20-hp. direct-current motors and one 10-hp. direct-current motor. Two of the pumps are used to circulate chilled water, and two are used to handle the condensing water system in connection with the cooling tower.

80° F. GUARANTEED

Temperature guarantee for summer was for an average inside temperature of 80° F. dry bulb and a relative humidity not to exceed 50% when the outside temperature registers 95° F. with 75° wet bulb. The system is designed to compensate for body heat from 1,320 people, lighting load of 44 kw., natural heat leakage through the walls, and the introduction of 1,500,000 c.f.m. of fresh air.

Tenants Will Pay For Air Conditioning On 'Metered' Basis

LINCOLN, Neb.—Payments by tenants in the Stuart building for their air conditioning on a "metered" basis will pay the entire cost of installation in 10 years, the building management reports.

At the time the installation was made, permanent financing was made to cover the cost, through the local bank. Mortgage on the building had been reduced to the point where it still represents only about one third of the cost of the building, including the new air-conditioning system.

A central air-conditioning system serves the three top floors of the building, occupied by a club, providing 11 a.m. to midnight conditioning. Two other central systems were installed for the retail stores on the street level, some of which have an 18-hour day. Individual units for heating and cooling were installed in the offices. The 2,000-seat theater located in the building had an air-conditioning system at the time the other installations were made.

Air conditioning the Stuart building has served to hold tenants who would have moved if the installation had not been made, the management says. Three tenants for large space, as well as several others, were obtained soon after the building was conditioned. Occupancy of the building is fast nearing 100%.

G-E Officials Give New Units the Once-over



(Above) A. E. Pierce (left), manager of General Electric oil-furnace sales, presents the first of the new conversion oil burners off the production line to J. J. Donovan, manager of General Electric's air-conditioning department. (Below) A group inspects the new "all in one" G-E store cooler. The bottom part of the jacket has been removed to afford a view of the cooling and conditioning mechanism.

Gar Wood Official To Address Educators

DETROIT—J. H. Nymberg, Detroit air-conditioning branch manager of Gar Wood Industries, Inc., will address the state convention of the Michigan Industrial Educational Society on "Building Advancement and its Relation to Automatic Heating and Air Conditioning," during the organization's state convention in the Book-Cadillac hotel here in April.

New Dry-Type Filter Has Flame-Resistance Claim

ROCHESTER, N. Y.—Staynew Filter Corp. has recently announced a new dry-type air filter, known as the "Wire-Klad," which features flame resistance, and meets with certain provisions of the National Board of Fire Underwriters.

Built in a fin-type construction, the new filter affords large filtering area in a relatively small space. The wire mesh encasing the filtering medium, usually cotton or a wool material known as Feltex, serves to reinforce the structure of the filter.

The filter may be cleaned by either air pressure or a vacuum cleaner, but is said to be inexpensive enough to use as a throw-away unit, as the filter insert may be replaced.

Where exposure to oil or greasy substances makes cleaning with a solvent necessary the wire reinforced filter insert can be easily lifted out.



MUELLER uses SYLPHON BELLOWS ... for Packless Glands

The Mueller Brass Company, recognized pioneers in the manufacture of high quality valves and fittings for mechanical refrigeration, quite logically turned to Fulton Sylphon, the pioneers and originators of the seamless metal Bellows, for the finest packless valve gland they could buy.

For this the most highly developed metal diaphragm in the world, is the result of 35 years of research and experience in manufacture and correct application. It has been time-tested beyond doubt in the products of the leaders in the refrigeration industry. Its quality is a known quantity for which you pay no premium. Write for Bulletin FO-121. Sent on request.

The Fulton Sylphon Co.
KNOXVILLE, TENNESSEE



PAR CONDENSING UNITS
28 MODELS
1-4 TO 20 H.P.
WRITE FOR FREE CATALOG
MODERN EQUIPMENT CORP.
DEFIANCE, OHIO, U.S.A.

Dayton V-BELTS
Silent, vibrationless, dependable, long-lasting. Powerful grip prevents slippage. A nearby distributor carries a complete stock for appliances and machines.
THE DAYTON RUBBER MFG. CO., DAYTON, OHIO
World's Largest Manufacturer of V-Belts



Now an AUDITORIUM LICENSEE

CLARAGE FAN COMPANY—well known for more than a quarter of a century as builders of air handling equipment—joins with the other notable concerns listed below, as a Licensee under Auditorium Patents. It may now install licensed Central Station air conditioning systems or manufacture units which incorporate the many advantages of Auditorium inventions or grant permission to others to install licensed systems, thus providing the benefits and economies of Auditorium Systems to its customers.

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East Pittsburgh, Pa.
YORK ICE MACHINERY CORP.
York, Pa.

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AUDITORIUM CONDITIONING CORPORATION

New York Office—17 EAST 42nd STREET

IN CANADA—AUDITORIUM AIR CONDITIONING, LTD.—MONTREAL

Service

Service Engineer Can Create Good Will And Save Himself Money By Doing Job Right So Call-Backs Are Avoided

BY K. M. NEWCUM

Editor's Note: This is the second and concluding part of an article by Service Editor K. M. Newcum in answer to a question from a service engineer—"How should I figure on a job so I can make money?" First part of the article was published in the March 16 issue.

Haste makes waste. There's no question about that. The largest percentage of call-backs (gratis calls) occur in the summer when the service man feels that he is too busy to spend the time necessary to thoroughly check the job after the repair has been made.

Percentage of call-backs on calls made during the slack season is considerably less, simply because the service man spends sufficient time to make sure he has the job in good shape.

A New York City service man boasted of making an average of 15 service calls a day. Still he wasn't showing a profit. Upon checking his records, it was found that an average of seven calls a day were gratis call-backs. Also that in some cases he had been called back three or four times.

CALL-BACKS CUT INCOME

An analysis of the calls showed that they were all made at the minimum charge of \$2.00 (labor charge) and very little material had been sold. The \$2.00 (minimum charge) was collected on the first call. The call-backs were gratis.

Needless to say, there is no profit in this kind of business. This service man was averaging only 7 to 8 pay calls a day. Both he and his customer would have benefited if he had spent the time necessary to have fixed the jobs right on the original call.

Owners of household refrigerators and commercial refrigeration equipment are human beings. They don't mind paying for what they receive. They resent being gyped.

If a service man rushes into their house or place of business, throws a few tools on the floor, lets out a little SO₂, makes a mess and presents them a bill all in 10 or 15 minutes, the owner has a suspicion that he is being gyped. He can't quite see how this man can do a good job in such a rush. Fact is, a good job is seldom one that is done hastily.

DON'T RUSH

Rushing is the most common mistake that experienced service men make. Inexperienced service men sometimes spend hours on a job and then don't get it fixed. That's a different story. The inexperienced man is learning as he goes and consequently requires much more time.

The experienced service man should spend enough time to do the job right to a point where the customer has absolute confidence in the man's ability and sincerity. This is important to the success of his business.

If the service man feels the job

should be checked in a day or two, he should be perfectly frank with the customer and tell him so. He should also charge the customer for both calls. Customers won't object to paying the extra charge if they feel they are getting something for their money—getting their refrigerator put in shape by a man who knows his business and in whom they have confidence.

BE LIKE A DOCTOR

Physicians seldom dismiss a patient after one call or treatment—they see the patient several times if necessary. The doctor's theory is entirely applicable to refrigeration service men.

When figuring on a commercial installation, for example, where considerable labor is involved, the job should be estimated at an hourly labor rate, which in addition to the profits on the material, allows a fair profit on the job.

If a large amount of profitable material is to be used, the hourly labor rate may be reduced. Conversely, if a small amount of material is to be used, the hourly labor rate should be increased accordingly.

Travel time should be charged going to and returning from out-of-town jobs. A mileage charge of around 5 cents per mile should also be included.

HOURLY CHARGE MISLEADING

An arbitrary hourly charge is misleading and is the principal reason why service men come out at the end of the week, month or year with no profit.

Refrigeration is a seasonal business. Consequently the overhead plus the desired profit must be figured over the entire year to include both the rush and dull seasons.

Here are some of the requirements to the successful operation of an independent service business:

10 GOOD RULES

1. **Know your business.** In servicing all makes and types of systems you are in competition with experts from the individual service departments of factory branches, distributorships, and dealerships—service men who have at their finger tips specific and detailed information concerning all of the service features of their particular make or type of system.

In order that you may equip yourself with the knowledge and information concerning all the different makes, types, and new developments, you must burn the midnight oil, studying trade and technical papers, service manuals, manufacturers' catalogues, and all other sources of information. Knowledge plus experience is a prime requisite.

2. Know your cost of doing business.

Determine your overhead. If it is too high, find some safe means of reducing it. Add overhead plus profit to every job where it is at all possible. What is lost on one job must be made up on another to balance the net profit.

3. **Build confidence.** Do every job so thoroughly that the customer will insist that you continue to do all of his service work. Slipshod, hammer and chisel service men who set out with the idea of gyping their customers and who have an "I don't give a damn attitude" will soon find their customers returning to authorized service departments for future work.

You are operating your own business. Unless you operate it in a businesslike manner, you can't expect to show a profit. Every one of your customers should be boasting for you.

4. **Charge profitable prices.** Make fewer calls per day if necessary but make each job profitable. Make your charge in terms of what you do for the customer, instead of some fixed amount. Most people appreciate quality service and are willing to pay for it.

5. **Don't knock the other fellow.** Knocking destroys confidence. Sometimes knocking helps the other fellow. Sell your services on a quality basis. Do the job thoroughly—you won't need to worry about the other fellow. There's plenty of business for you and the other fellow too.

6. **Be ambitious**—clean the air-cooled condenser, oil the motor, clean the condensing unit, check the belt tension, clean up the mess, demonstrate to the customer that you are interested in his equipment and welfare. You will be surprised what these little extras will do for you in the way of building confidence and future business.

7. **Be courteous.** Courtesy pays big dividends. A man may be a fine mechanic but if he is discourteous, he will make a very bad impression upon the customer. His chances of repeat business are materially reduced. To be courteous costs nothing

. . . it's a real business and profit builder.

8. **Listen to the user's troubles.** If the user wants to get a load off his chest, let him get it off. He'll feel better when it's over. Many service difficulties are imaginary. However, if the customer thinks something is wrong with his equipment, it's your cue to very carefully analyze the trouble and correct it to the customer's entire satisfaction.

It may be some little thing that other service men have thought too insignificant to bother with and consequently ignored. It's important then that you recognize the mental condition and win the customer's confidence by letting him help you analyze and correct the trouble. If you let the customer help you satisfy his pet theory, he'll think you are a swell service man.

9. **Use quality parts and material.** Don't try to slip a used expansion valve or thermostat off on the customer for a new one. It may bounce back in your lap. Be proud of and call the customer's attention to the fact that the parts and material you use are of the highest quality.

10. **Be honest and fair.** Charging a fair profit for your service is not being dishonest nor unfair. In fact you are being unfair to yourself and your business if you do not charge enough for your work to make a profit. But don't try to slip fast ones over on your customers. Housewives and commercial refrigeration owners have been gyped before and they are wise individuals.

If you promise to do a certain thing for a customer—do it, even if it costs you money. Then be more careful in the future about what you promise to do.

THE BETTER MOUSETRAP . . . THE BEATEN TRACK!

Jobbers with Local Stocks

Albany, N. Y.	Hey & Co.
Allentown, Pa.	General Refrigeration Sup. Co.
Atlanta, Ga.	Bowen Refrigeration Supplies, Inc.
Atlanta, Ga.	J. M. Tull Metal & Supply Co., Inc.
Baltimore, Md.	Cleenden Bros., Inc.
Baltimore, Md.	Melchior, Armstrong, Dessau Co.
Binghamton, N. Y.	Syracuse Equipment Corp.
Boston, Mass.	A. E. Borden Co.
Bridgeport, Conn.	Parsons Bros.
Brooklyn, N. Y.	The Capson Co.
Brooklyn, N. Y.	Coleman Electrical Sup. Co., Inc.
Brooklyn, N. Y.	Root, Neal & Co.
Buffalo, N. Y.	McLellan, Armstrong, Dessau Co.
Cambridge, Mass.	Melchior, Armstrong, Dessau Co.
Charlotte, N. C.	Henry V. Dick Co.
Chattanooga, Tenn.	Noland Co., Inc.
Chicago, Ill.	Airo Supply Co.
Chicago, Ill.	The Harry Alter Co., Inc.
Chicago, Ill.	H. W. Blythe Co.
Chicago, Ill.	Borg-Warner Service Parts Co.
Chicago, Ill.	Fred C. Kramer Co.
Chicago, Ill.	Champion Co.
Chicago, Ill.	Automatic Htg. & Cooling Sup. Co.
Cincinnati, Ohio	The Merle Bros. Co.
Cincinnati, Ohio	Williams & Co., Inc.
Cleveland, Ohio	The Harry Alter Co., Inc.
Cleveland, Ohio	Williams & Co., Inc.
Columbus, Ohio	The Justus & Parker Co.
Dallas, Texas	The Electromotive Co.
Davenport, Iowa	Republic Electric Co.
Dayton, Ohio	The W. H. Kiefer Co.
Denver, Colo.	Auto Equipment Co.
Detroit, Mich.	J. M. Ober, Inc.
Detroit, Mich.	Borg Warner Service Parts Co.
Flint, Mich.	Shand & Son Specialties
Fort Wayne, Ind.	H. J. Schroeder Co.
Fr. Worth, Tex.	McKinney Refrigeration Sup. Co.
Greenboro, N. C.	Haseco, Inc.
Harrisburg, Pa.	Melchior, Armstrong, Dessau Co.
Hartford, Conn.	Marsden & Wasserman, Inc.
Hempstead, Long Island, N. Y.	Sid Harvey, Inc.
Honolulu, T. H.	Theo. H. Davies & Co., Ltd.
Houston, Texas	Walter Refrigeration Supply Co.
Houston, Texas	Standard Brass & Mfg. Co.
Indianapolis, Ind.	F. H. Langenkamp Co.
Jackson, Miss.	Enochs Sales Co.
Jacksonville, Fla.	Jamite Company
Kansas City, Mo.	Forslund Pump & Machinery Co.
Knoxville, Tenn.	Leinard Engineering Co.
La Crosse, Wis.	W. A. Roosevelt Co.
London, Ont., Canada	County Seat Plumbing Sup. Co., Ltd.
Long Beach, Calif.	L. B. Marsh
Los Angeles, Calif.	Refrigeration Service, Inc.
Los Angeles, Calif.	Refrigeration Parts Exchange
Louisville, Ky.	Louisville Mill Supply Co., Inc.
Lubbock, Texas	R. & R. Parts & Supply Co., Inc.
Macon, Ga.	Lowe Electric Co.
Madison, Wis.	Gustave L. Englehardt Co.
Montreal, Que., Canada	Railway & Engineering Specialties, Ltd.
Mt. Vernon, N. Y.	County Seat Plumbing Sup. Co.
Newark, N. J.	T. W. Bigner Co.
New Haven, Conn.	Reese, Inc.
New Orleans, La.	Enochs Sales Co.
New Orleans, La.	The Spangler Co.
New York, N. Y.	The Harry Alter Co., Inc.
New York, N. Y.	Aetna Supply Co.
New York, N. Y.	Melchior, Armstrong, Dessau Co., Inc.
Philadelphia, Pa.	Peerless Utal Co.
Philadelphia, Pa.	Dessau Co., Inc.
Phoenix, Ariz.	Victor Sales Corporation
Pittsburgh, Pa.	Refrigeration Supplies Distributor
Portland, Ore.	Williams & Co., Inc.
Providence, R. I.	Bill Hicher, 526 S. E. Wash.
Rochester, N. Y.	Rhode Island Supply & Eng. Co.
Rochester, N. Y.	Ontario Metal Supply, Inc.
Rochester, N. Y.	Denau Co., Inc.
Rockford, Ill.	Gustave A. Larson Co.
St. Joseph, Mo.	Bristol Supply Co.
St. Louis, Mo.	The Spangler Co.
St. Louis, Mo.	The Harry Alter Co., Inc.
Sacramento, Calif.	Hinshaw Supply Co.
Salt Lake City, Utah	Peerless Utal Co.
San Antonio, Texas	Straus-Frank Co.
San Francisco, Calif.	California Refrigerator Co.
San Juan, Puerto Rico	Refrigeration Supply Co.
Scranton, Pa.	Conrad Service Supply Co.
Seattle, Wash.	Refrigeration Supply Co.
Sicamous, British Columbia	National Refrigeration Service
South Bend, Ind.	The South Bend Supply Co.
South Bend, Ind.	F. H. Langenkamp Co.
Springfield, Ill.	United States Electric Co.
Springfield, Mass.	C. P. Payson Co.
Syracuse, N. Y.	Syracuse Equipment Corp.
Toledo, Ohio	Heat & Power Engineering Co.
Toronto, Ont., Canada	Railway & Engineering Specialties, Ltd.
Tulsa, Okla.	Machine Tool & Supply Co.
Vancouver, B. C., Canada	Fleck Bros., Ltd.
Washington, D. C.	Refrigeration Supply Co.
Waterloo, Iowa	Winterbottom Supply Co.
White Plains, N. Y.	County Seat Plumbing Supply Co., Inc.
Wilkes-Barre, Pa.	Radi Service Co.
Winnipeg, Man., Canada	Railway & Engineering Specialties, Ltd.
Worcester, Mass.	Standard Supply Co.

"If a man can write a better book, preach a better sermon or make a better mousetrap than his neighbor, though he builds his house in the woods, the world will make a beaten path to his door".—Emerson.

So it has been with Kerotest, the pioneer manufacturer of quality refrigeration valves and fittings who in 1924 began making valves better than they were ever made before. Today, the original beaten path through the woods has become a network of steel, water and concrete highways radiating to all parts of the refrigeration world.

A complete line of genuine Kerotest Valves, Fittings and Accessories is now readily available through approximately 100 Jobbers and Factory Representatives listed herewith for your convenience—a service as near as your telephone—ready to supply your every need with telegraphic promptness.

KEROTEST MANUFACTURING CO. PITTSBURGH, PA.

Factory Representatives

Chicago, Ill.	New Orleans, La.
Dayton, Ohio	New York, N. Y.
Detroit, Mich.	St. Louis, Mo.
Los Angeles, Calif.	San Francisco, Calif.
Winnipeg, Man., Canada	Winnipeg, Man., Canada
Worcester, Mass.	New York City, N. Y., U. S. A.

General Export Representatives

Melchior, Armstrong, Dessau Co., Inc.	300 Fourth Ave.
Winnipeg, Man., Canada	New York City, N. Y., U. S. A.



MAXIMUM STRENGTH

Manhattan V-Belts

Maximum strength and flexibility . . . assured by an original Manhattan construction, which minimizes destructive internal heat and ultimate stretch. Endless whicord strength section is fully floated in rubber, welded into a strong tension member, and placed in the neutral axis area. Smoother operation, free from noise, and longer life is assured when you specify Manhattan V-Belts.

**THE MANHATTAN RUBBER MANUFACTURING DIV.
of Raybestos-Manhattan, Inc.**

45 Townsend Street Passaic, N. J.

Electric Refrigerator Sales Mount Rapidly In British West Indies But Dealers Have Price & Credit Problems Like Those In U.S.

BRIDGETOWN, Barbados, B. W. I.—As a result of a complete change of opinion on the part of the buying public here in the past few years, sales of electric refrigerators have risen steadily from an average of four or five a year to about 200 a year, and are still climbing.

Eleven years ago, the majority of the inhabitants of this small island, easternmost of the British West Indies, looked upon a refrigerator as a luxury. Today it is regarded as a necessity by those families who are able to buy one.

Of course, the market for refrigeration in Barbados is limited, since most of the 175,000 inhabitants are negroes of the laboring class and other low-wage earners who lack the means of purchasing such an expensive commodity.

MANY MAKES THERE

The business that does exist is divided among the following American makes of refrigerators: Coldspot, Crosley, Frigidaire, General Electric, Gibson, Norge, Sparton, Stewart-Warner, and Westinghouse. Cope-land, Kelvinator, and Mayflower once were actively represented here, but seem to have dropped out of the local sales picture.

Coldspot and Gibson refrigerators are distributed by W. S. Monroe & Co., Ltd., the refrigeration department being managed by Nigel Seale.

The Monroe company acquired the Coldspot franchise in June, 1936, and only recently became distributor for Gibson as well. The latter was taken on to satisfy the desire of some of the company's clients who wanted to buy a refrigerator with a sealed compressor.

Mr. Seale has been in the refrigeration business here for nine years. In the early part of his refrigeration career he was distributor for Grigsby-Grunow Co., maker of Majestic refrigerators, and when this company ceased production, Mr. Seale became Crosley distributor.

He later transferred the Crosley business to C. F. Harrison & Co., Ltd., and then became Monroe's refrigeration manager. Using as a slogan "Showmanship Sells Goods," Mr. Seale consistently has emphasized dramatic presentation of refrigerators.

SELLS BY SHOWMANSHIP

At the local annual exhibitions of 1936 and 1937, the Monroe company had a booth displaying the products

which it handles. These displays, coupled with newspaper advertising, have been leading factors in promoting Coldspots.

Monroe's maintains an efficient service department, and, considering the size of the market, has spent quite a large sum of money for tools and other equipment, Mr. Seale says.

In regard to actual service work, Mr. Seale states, "We never check up on a refrigerator with gauges until we cannot do better. We have a large watt meter which tells how many watts are being drawn by the motor. We then make the necessary adjustments to the expansion valve, or make any other adjustments until the motor draws the same number of watts as when the refrigerator was new."

GAUGES AS LAST RESORT

"If, after making all adjustments, the refrigerator still refuses to function properly, then we connect the gauges and go over the adjustments. It is very seldom that we have to do this."

"The above procedure we think is best, because it saves opening the sealed systems, which would create the possibility of air and moisture getting in."

Mr. Seale relates an amusing incident in which he participated while on a service call. One Sunday he received a phone call at 6:30 a.m.

"This customer," Mr. Seale continues, "had entertained friends the night before, and at 11 o'clock when the left-overs were being placed in the Coldspot, the servant noticed that the frost had begun to melt from the evaporator and that the inside light had gone out."

TALE OF A CAT

"By 7 a.m. I was at the store, where I luckily secured the services of two loafers who lifted the spare unit on the service car. As we always keep a refrigerator working in the showroom, I secured two pans of ice cubes and took them along with me."

"By 7:30 I arrived at the country residence, only to find that the cat and dog had gone on the warpath the night before, with the cat evidently beating a hasty retreat underneath the refrigerator and becoming entangled in the line cord, which it eventually succeeded in removing from the plug."

"Damn the cat!" I whispered to myself.

"Putting on the best smile I could manage under the circumstances, I explained what had caused the trouble. The owner was all apologies, and his wife was tickled pink when I produced the pans of ice cubes."

"So thoughtful of you," she cooed.

"Explaining that this was a part of our service, I departed. They were so pleased with the promptness with which their call was answered, that they have not ceased telling their friends about it yet."

THOUGHTFULNESS PAYS

"From the looks of it, two of their friends are now thinking of purchasing refrigerators from us, but have not yet made up their minds whether they'll be Coldspot or Gibson."

Asked about market saturation, Mr. Seale replied, "I do not think saturation of the refrigerator market will ever be reached anywhere in the world. The eye appeal of the new models, coupled with the new features, and the ever-increasing reduction in operating costs will always tend to make people purchase new models."

"If American manufacturers would devote their time and money to equipping refrigerators with real convenience features and to the possible adoption of vacuum insulation which would halve the operating cost of refrigeration, they would derive greater benefit than by trying to outdistance each other in the race to see who can fit the greatest number of gadgets."

SOME PROBLEMS

"Speaking of the selling angle, there are one or two firms who will definitely have to revise their sales policy or go out of business. One firm is offering refrigerators to customers at nothing down and \$2.40 a month, with a five-year guarantee. It takes six years for a customer to complete payments."

"Any refrigerator which we sell will have to be paid for within two years, or in any special case, two and a half years time."

"We are not prepared to go beyond this. We believe our policy to be right, as we are making sales and getting along very well, although we hear competitors saying that 'There's nothing in the refrigerator business.'"

Competition is very keen in Barbados, Mr. Seale said. A prospective purchaser may actually have three different makes of refrigerators in her home on trial at the same time before definitely deciding which to buy. Customers insist on testing for themselves the cost of operation, hum from the machinery when in operation, freezing of ice cubes. Then they usually ask their friends what refrigerator they would buy.

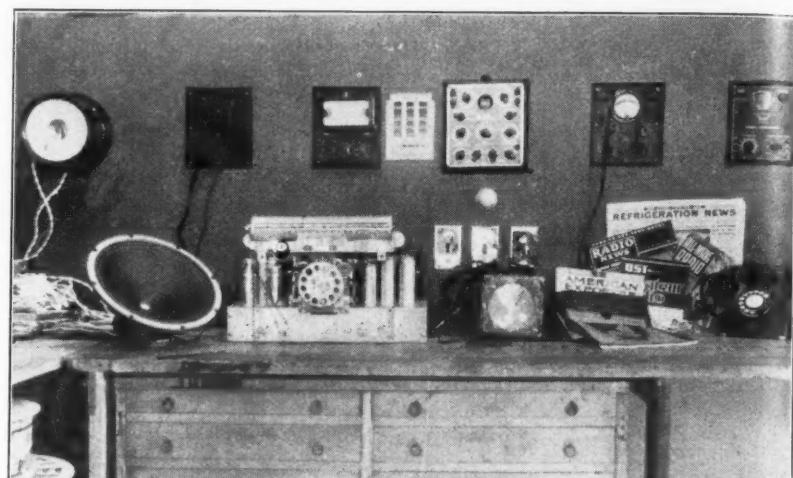
The Monroe company also is interested in air-conditioning units, and Mr. Seale believes that eventually

Outdoor Exhibit In Barbados



Booth of the W. S. Monroe & Co., Ltd., at the 1937 floral exhibition at Barbados, British West Indies. Appliances and appliance parts were demonstrated in an appealing outdoor setting.

A West Indies Service Shop



A corner of the Monroe service department. The watt meter on the instrument panel is used for checking the refrigerators. Note also the recording thermometer and the trade magazines.

they will be taken on. Negotiations now are under way with an American manufacturer of air-conditioning equipment with a view to Monroe's becoming distributor in Barbados.

Mr. Seale expressed an interest in corresponding with sales and service men in all parts of the world to exchange ideas and information.

High Bonding Strength Claimed For Plastic

NORTH TONAWANDA, N. Y.—A new phenolic resin adhesive which, when in solution in a hydrocarbon solvent, is said to have exceptionally high bonding strength, has been announced by General Plastics, Inc.

Known as 5116 Resin Adhesive, this new material is claimed to be particularly efficient in bonding asbestos to sheet steel; rubber to metal or cellulose acetate materials; plastic molded parts; porcelain enameled parts; cellophane or treated papers to steel, copper wire, or wood.

It is said to be unaffected by water, moderate heat, alkalies, and mild acid.

Dayton Business Men Seek Retention Of Sales Tax

DAYTON, Ohio—Refrigeration and air-conditioning manufacturers, distributors, and dealers in this territory have been asked to ignore petitions now being circulated in an effort to eliminate the state sales tax through adoption of an amendment providing that after Jan. 1, 1939, no excise tax shall be levied on the sale or purchase of any goods or commodities, except upon fuel for motor vehicles.

In a special bulletin to 1,000 firms in Dayton and vicinity, the Dayton Chamber of Commerce points out that, if the amendment is approved by voters next November, between \$70,000,000 and \$90,000,000 annually will be lost in revenues now going to schools, cities, villages, counties, and townships, as well as for poor relief and old age pensions.

This would virtually cause a complete collapse of governmental activities and the public schools, it is pointed out, unless new and burdensome taxes were substituted.

Under the present sales tax law, it is declared, the burden is divided evenly, but in the event the proposed amendment is adopted, the brunt of whatever new tax burden was applied would have to be borne by manufacturers, distributors, and dealers in the refrigeration, air-conditioning, and other industries.

MASTERCRAFT ADJUSTABLE PAD AND CARRYING HARNESS

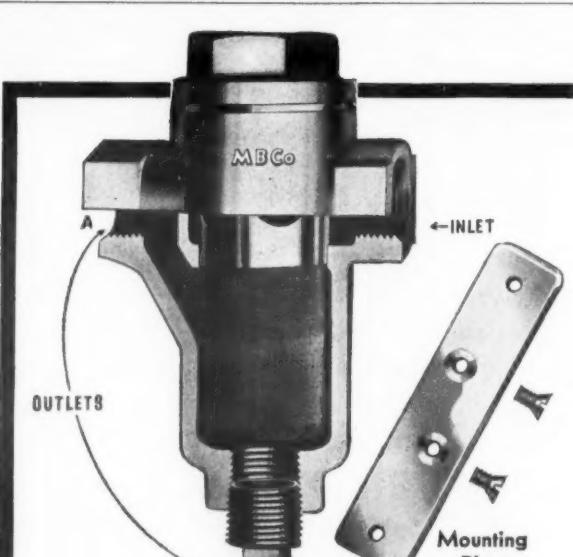
The most efficient and economical equipment made for handling refrigerators safely and without scratching or marring. Pad is separate from harness and both adjustable to all styles and sizes of cabinets. Efficient, sturdy, easily and quickly applied. Name of refrigerator attractively lettered on pad without charge.

Adjustable Pad, \$9.50 each.
Adjustable Harness, \$6.00 each f.o.b. Chicago.

Write for 1938 folder and prices on pads for refrigerators, washers, irons, ranges, etc.

Pat. Appl'd for.

BEARSE MANUFACTURING CO.,
3815-3825 Cortland Street, Chicago, Illinois



MUELLER BRASS CO. WATER STRAINER

The new Water Strainer may be used for either straight through or angle installations on water or refrigerant lines by plugging out (A) or (B) as desired. Cap and screen are readily removed — easily accessible for cleaning.

This strainer is furnished with steel mounting plate and screws. On copper pipe installations, where rigidity may be required, the mounting plate may be used to fasten strainer to wall or other convenient location. Threaded adapters are used with copper pipe. Mounting plate is not required with rigid, threaded pipe.

Catalog No. A-13658
A-13660

Description
3/8" Female Pipe Thread
1/4" Female Pipe Thread



MUELLER BRASS CO. LIQUID LINE FILTER

The small refrigerant liquid line filter has the improved cone-shaped strainer screen with a generous 3 1/2 square inches of 100 Mesh Monel Screen. The cone strainer is packed with wool to filter fine particles from refrigerant line. It is furnished in the following sizes:

Catalog No. A-13661
A-13691
A-13692
A-13693
A-13694

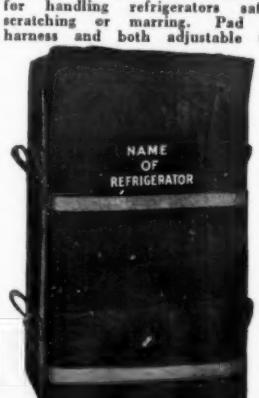
Inlet
1/4" Male Flare
5/8" Male Flare
1/4" Fem. Flare
5/8" Fem. Flare
1/4" Male Pipe

Outlet
1/4" Male Flare
5/8" Male Flare
1/4" Male Flare
5/8" Male Flare
1/4" Male Flare

**MUELLER BRASS CO.
PORT HURON, MICHIGAN.**

LINDERME
SEAMLESS TUBING
*Sealed
AND
Dehydrated*

LINDERME
TUBE COMPANY
CLEVELAND OHIO, U.S.A.



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Service Methods

How Pressure-Vacuum Pump Is Used With Carbon Tetrachloride To Clean Dirty SO₂ Systems In the Field

BY K. M. NEWCUM

CHICAGO—A method comprising the use of a pressure-vacuum pump and carbon tetrachloride for cleaning dirty SO₂ systems on the job, was explained and demonstrated by Geo. C. Licence of the Westinghouse service department to a group of service men who attended a service school held at the Westinghouse offices here March 4.

Moisture in an SO₂ system results in sulphurous acid. Sulphurous acid attacks the non-ferrous metal parts and the oil. A strong solution of sulphurous acid may cause the compressor parts to seize (stick), rendering the compressor inoperative. Changing a "stuck-up" compressor, declared Mr. Licence, does not remove the cause of the condition and consequently there is no assurance that the new compressor will not also stick up.

Fact is several compressors have stuck-up on the same job because the cause of the trouble—moisture laden SO₂ and oil in other parts of the system—was not removed before the new compressors were installed.

DO IT IN THE FIELD

"Replacing one stuck-up compressor for a dealer may be sanctioned by the factory," said Mr. Licence, "but we had one dealer in a city in up-state New York who changed five stuck-up compressors (hermetic con-

The cleaning apparatus shown in the diagram, consists of vacuum-pressure pump (1/4-hp. Universal Cooler compressor), a one-pint carbon tetrachloride container connected with a Y connector between the compressor discharge valve and the air tank. The connection from the bottom of the carbon tetrachloride container is equipped with a valve (No. 3, Fig. 1). The air tank is equipped with a pressure relief valve which is set to relieve pressure in excess of 190 lbs.

RECOMMENDED PROCEDURE

The cleaning procedure outlined by Mr. Licence is as follows:

1. Remove the stuck-up condensing unit.
2. Remove the expansion valve or valves and connect the liquid line direct to the coil.
3. Remove any check or automatic valves that might interfere with the circulation through the circuit and connect the lines with fittings.
4. Connect the liquid line to the pressure connection on valve 3, Fig. 1.
5. Leave the suction line open to the atmosphere.
6. Locate the end of the suction line so that it will drain into a clean white vessel.

Financial Editor Tells What Air Conditioning Will Mean To Other Industries

NEW YORK CITY—Effects of air conditioning on many diversified industries, ranging from heavy castings, forgings, and thermostatic bi-metals to glass bricks and chemicals, are revealed by Roderick P. Stewart in a recent issue of Barron's, weekly financial magazine.

Some of the equipment used in the larger air-conditioning installations falls almost in the heavy industry class, Mr. Stewart points out.

"So this industry, which looks beyond the current recession to further substantial growth, has to buy a good deal more than engineering and merchandising ability. What industries get and will get the business?

"Steel and iron makers, for one group; and non-ferrous metal makers, for another. One of the leading air conditioners lists among its steady purchases such items as:

"Hot and cold rolled sheets, galvanized sheets (for air ducts), grey iron castings, steel stampings, various copper products, non-ferrous castings, and forgings.

"Instrument makers send it temperature and pressure controls while valve manufacturers deliver water regulating valves. From the chemical industry come refrigerants; and if any of its customers use water from deep wells for cooling purposes, pump manufacturers make sales.

"Cold air is more sluggish than warm air, so cooling installations call for fans, which are used in great numbers, whether they are made by the installing company or by somebody else. And in this connection, don't overlook electric motors.

"Once you've got the air inside,

properly warmed or cooled, humidified or dehumidified, it'll cost less if you can keep it that way without much further use of energy. Which brings up the subject of insulation, of which plenty has been heard in connection with heating. It has its place too, in cooling, both in holding down size and cost of the cooling apparatus needed, and in the length of time such apparatus has to work.

"With reference to glass, air conditioning has facilitated the use of glass (in the form of glass bricks and otherwise) in building construction.

"While on the subject of the spending set in motion by the demand of people or of businesses for conditioned air, some 20 or 30 building trades share in certain installations, and in some cases the labor portion of the total installed cost runs up to 70%.

"The industry is constantly hammering on the idea of providing for air conditioning in buildings now in process of design.

"What of the 1938 market? Installations which can be moved as the store operator moves are expected to go well among the smaller establishments. In the industrial field, manufacturers emphasize close analysis of the economics of each prospective customer's business, and a proper selling talk on the equipment which will solve his particular problem.

"The residential field, of course, is in for a more intensive sales effort than ever before. As mentioned previously, the major part of the industry's volume has been coming

from the commercial, industrial and governmental fields. It takes a good many residential installations to equal one sizable installation in other fields.

"How are chances of reducing costs and unit prices? Executives shake their heads and say that with present wage scales and present costs of materials (most of the materials used have been in production a long time, so it's hard to buy them more cheaply), higher rather than lower prices on installed jobs are in prospect."

Domestic Water Blender Introduced By Sarco

NEW YORK CITY—A new mixing valve, known as the Domestic Water Blender, has been announced by Sarco Co., Inc. here. This tempering valve is designed for use on residential heating boilers, equipped with auxiliary hot water heaters of the type in which the heating medium is the water in the boiler.

As the temperature of this water varies with the load on the boiler, the service water may at times be scalding hot. Function of the new device is to avoid this condition, and to provide service water at any desired temperature.

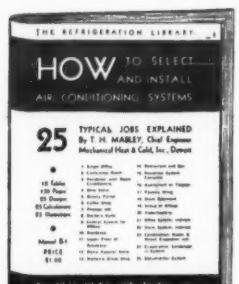
The standard Blender has a range of 140 to 180° F., and can be adjusted over this range by means of a key furnished with the unit.

R.R. Adds 50 Conditioned Cars

BOSTON—Plans for the purchase of 50 additional air-conditioned, lightweight, streamlined passenger coaches at a total cost of \$2,100,000 have been announced by trustees of the New York, New Haven, & Hartford railroad.

Where Air-Conditioning Systems Were Installed In Birmingham, Ala. in 1937

Name and Address	Make of Equipment	Hp.
Barber Shops		
Tutwiler Barber Shop	Airtemp	3.25
Five Points Barber Shop	Howe	3.33
Beauty Parlors		
Blachs	Airtemp	6
Pandora Beauty Shop	Howe	11
Dentist's Office		
Dr. G. Matthews	Airtemp	3.33
Funeral Homes		
Rideout Funeral Co.	Airtemp	16
Brown Service (Johns)	Carrier	2.25
Luquire Funeral Home	Westinghouse	13.50
Grocery & Delicatessen Stores		
Hill Grocery Co.	Frigidaire	11
Grayson's Ice Cream	Howe	5
Hospitals		
American Cast Iron Pipe Co. (Private)....	Carrier	25.80
Offices		
W. P. Ballard	Adeo	.25
Herbert Stockham	Airtemp	1
Bradley, Baldwin All & White	Airtemp	1
Sou. Line Material Co.	Airtemp	3.33
Roy Gridley	Airtemp	2
Birmingham Electric Co.	Airtemp	10
Ireland Investment Co.	Carrier	6
R. R. Myer	Carrier	2.25
First National Bank	Carrier	.75
W. B. Leedy	Coolaire	.50
Southern Dairies	Frick	1
Flint Refrigeration Co.	Frigidaire	.75
Frigidaire Corp.	Frigidaire	.75
Sears, Roebuck & Co.	Hercules	.75
Residences		
W. B. White	Airtemp	3.33
Mrs. Boylestone	Carrier	.75
Mrs. Eastwood	Carrier	.75
Restaurants		
Birmingham Country Club	Airtemp	16.66
Birmingham Athletic Club	Airtemp	6.66
Casino	Airtemp	13
Tutwiler Continental Room	Carrier	40
Bankhead Hotel	Carrier	18
Tom Constantine	Carrier	25
Thomas Jefferson Hotel	Frick	46
Paramount	Westinghouse	12.50
Stores		
Bromberg Jewelry Co.	Airtemp	19
Fan Tan Shop	Airtemp	3.33
Adorable Dress Shop	Airtemp	3.33
Florsheim Shoe Co.	Carrier	3.25
Kress	Carrier	302
Grayson's Dress Shop	Trane-Curtis	15
Burt Shoe Co.	Westinghouse	10
Lerner's	Westinghouse	16.50
Odum Bowers & White	Westinghouse	31.25
Odum Clothing Co.	Westinghouse	18.50
Pizitz Dry Goods Co.	York	587.50
Thom McAn Shoe Co.	York	5
Burger Phillips Store (6th floor)....	York	26.20
Virginia Dare Shop	York	8.50
Budget Shop	York	6.25
Theaters		
Empire Theater	Carrier	58
Galax & Capitol Theaters	Carrier	63
Strand Theater	Westinghouse	61.50
Miscellaneous		
U. S. Federal Court	Carrier	28.50
Alpha Portland Cement Co. (laboratory) ..	Carrier	3.25
Alex Kontox Fruit Co. (process job) ..	Frick	10
Radio Station WAPI (studio)	Kelvinator	.50
Evaporative Coolers		
Woodlawn Theater	Wilkins Supply Co.	15
Fairfield Theater	Wilkins Supply Co.	10
Rialto Theater	Wilkins Supply Co.	27.50
Central Park Theater	Wilkins Supply Co.	8



How to Select and Install Air Conditioning Systems

By T. H. Mabley

THIS is a series of 25 articles on AIR CONDITIONING, written by Mr. T. H. Mabley, chief engineer, Mechanical Heat & Cold, Inc., Detroit, Mich. These articles are "case histories" of installations engineered by Mr. Mabley in his regular work as chief engineer for a large Detroit air-conditioning contractor and distributor. They should be of real value to any individual who has any part in the estimating, engineering, and installation of air-conditioning equipment—also to prospective purchasers or users of air-conditioning equipment.

The "cases" start with the simpler installations such as a single office and continue on through to more complicated installations, such as process jobs and the air conditioning of auditoriums and department stores.

Simple methods are given for calculating heat gain and loss for each job, determining design conditions, selecting equipment, and locating and installing equipment. Direct and indirect systems are used in these typical installations and the advantages and disadvantages of each method are given.

While all the known fundamental functions of air conditioning are desirable, there are certain applications and conditions where some of the functions are not considered necessary nor economical to install and operate. High relative humidity, such as may be obtained with winter humidification might cause show windows in a store to cloud up, thus impairing the display. For such an application the summer functions are purchased, and winter humidification is omitted.

In a process job all of the functions may be utilized as the conditioning equipment is required to maintain predetermined year-around temperature and humidity within close limits.

Conditioning an auditorium where large crowds of people will be present for two or three hour periods has its particular problem while the design limits for a department store with its heavy electric light load require expert attention. All of these and other factors that must be considered are discussed for the individual application, and the selection of equipment is based upon the load calculations for predetermined design conditions.

The procedure followed on these 25 typical jobs may be studied by the contractor, dealer, engineer, etc., who is figuring a job and much valuable information may be gained that may save hours of time and possibly prevent expensive mistakes.

136 pages
\$1.00 per copy

Business News Publishing Co., 5229 Cass Ave., Detroit

SERVEL COMMERCIAL REFRIGERATION AND AIR CONDITIONING

Whether you need
6 machines or
6,000, Servel's engi-
neers and factory
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ice. Write for details
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and Air Condition-
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HANDLE A COMPLETE LINE THAT IS
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Includes every
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you need to
turn your busi-
ness to profit
on all kinds
of refrigeration
and comfort
control jobs.

Write for information covering the GR-Lipman distribution plan.

GENERAL REFRIGERATION CORPORATION
Dept. F-2, Beloit, Wisconsin, U.S.A.

10,998 Commercial Units Sold To Distributors By 14 Nema Companies In January

The following report of commercial refrigerating and air-conditioning equipment sales for January, 1938, was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by

14 companies:

Brunner Mfg. Co., Carrier Corp., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div., Nash-Kelvinator Corp., Merchant &

Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR JANUARY, 1938	Domestic		Canadian		Other Foreign		Total World	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Bottle Water Coolers—Complete.....	115	\$ 7,258	1	\$ 70	33	\$ 2,293	149	\$ 9,621
2. Pressure Water Coolers—Complete.....	533	54,035	1	106	39	4,437	573	58,578
3. Water Coolers—Low Side Only.....	51	3,824	....	....	5	358	56	4,182
4. Ice Cream Cabinets—Complete.....	996	137,881	58	5,832	72	9,494	1,126	153,207
5. Ice Cream Holding Cabinets Only (Remote).....	117	15,788	3	391	....	....	120	16,179
6. Bottled Beverage Coolers—Complete.....	2,326	201,168	350	18,148	24	1,965	2,700	221,281
7. Beverage Coolers (No High Sides).....	28	1,893	....	....	4	282	32	2,175
8. Milk Coolers—Complete	4	635	....	....	....	....	4	635
9. Milk Cooling Cabinets (No High Sides).....	....	....	....	....	....	....	....	....
10. Self-Contained Air Conditioners (Air Cooled—All Sizes).....	1,075	219,290	....	....	75	29,371	1,150	248,661
11. Self-Contained Air Conditioners Water Cooled—Under 2 Hp.....	30	4,715	....	....	31	11,595	61	16,310
12. Self-Contained Air Conditioners Water Cooled—2 Hp. and Up.....	92	46,300	....	....	....	....	92	46,300
13. Air Conditioners—Central Stations 5 ton capacity and over.....	15	9,108	....	....	1	711	16	9,820
14. Air Conditioners—Floor Type (No High Sides)....	74	29,063	....	....	9	5,515	83	34,578
15. Air Conditioners—Ceiling (Cooling Only—No High Sides).....	66	8,829	....	....	7	1,042	73	9,871
16. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides).....	12	7,409	....	....	5	2,800	17	10,209
17. Air Conditioners—Residential Type (No High Sides, Boilers or Furnaces).....	15	4,075	....	....	12	1,848	27	5,923
18. Condensing Units Less Than $\frac{1}{2}$ Hp.....	823	38,631	7	442	200	11,585	1,030	50,658
19. Condensing Units— $\frac{1}{2}$ Hp.....	1,266	90,974	17	1,561	432	32,550	1,715	125,085
20. Condensing Units— $\frac{1}{2}$ Hp.....	682	66,079	16	2,024	207	24,651	905	92,754
21. Condensing Units— $\frac{1}{2}$ Hp.....	391	54,713	15	2,348	98	13,966	504	71,027
22. Condensing Units—1 Hp.....	340	51,318	5	942	68	12,224	413	64,484
23. Condensing Units— $\frac{1}{2}$ Hp.....	202	39,632	3	736	24	4,988	229	45,356
24. Condensing Units—2 Hp.....	89	22,760	2	303	15	3,338	106	26,401
25. Condensing Units—3 Hp.....	80	24,657	....	....	17	4,712	97	29,369
26. Condensing Units—5 Hp.....	27	13,143	....	....	11	4,931	38	18,074
27. Condensing Units—7 $\frac{1}{2}$ Hp.....	18	11,724	....	....	8	5,454	26	17,178
28. Condensing Units—10 Hp.....	17	12,676	....	....	3	2,061	20	14,737
29. Condensing Units—15 Hp.....	15	15,087	....	....	2	943	17	16,030
30. Condensing Units—20 Hp.....	12	14,700	....	....	1	1,240	13	15,940
31. Condensing Units—25 Hp.....	5	6,820	....	....	....	....	5	6,820
32. Condensing Units—30 Hp.....	9	14,447	....	....	....	....	9	14,447
33. Condensing Units—40 Hp.....	7	11,275	....	....	6	9,420	13	20,695
34. Condensing Units—50 Hp.....	3	7,311	....	....	....	272	3	7,583
35. Total—Lines 1 to 34 Inclusive.....	3,986	495,947	65	8,356	1,092	132,335	5,143	636,638
36. Total—Lines 1, 2, 4, 6, 8, 10, 11, 12, 35.....	9,157	....	475	....	1,366	10,998	....	....
37. Commercial Evaporators (Not Reported Above).....	1,279	44,790	90	3,113	973	28,224	2,342	76,127
38. Air Conditioning Evaporators (Not Reported Above).....	50	10,919	....	....	7	6,930	57	17,849
39. Total Commercial & Air Conditioning.....	....	\$ 1,302,928	....	\$ 36,016	....	\$ 239,200	....	\$ 1,578,144

Census Bureau Reports \$2,655,844 In January Orders Booked By 125 Conditioner Manufacturers

Item	Value of Orders Booked January, 1938	December, 1937	January, 1937
Total	\$ 2,655,874	\$ 2,948,246	\$ 4,876,322
Air Conditioning Group—Total	1,257,908	1,040,025	2,637,948
Unit Systems—			
Self-contained (shipped substantially complete)....	340,842	63,463	448,985
Not self-contained (shipped in sections), including refrigerating or cooling medium.....	216,789	297,961	651,713
Central-station Systems, excluding installation if installed—			
Human comfort (including refrigerating or cooling medium sold separately or otherwise for air conditioning)*.....	265,979	490,881	849,280
Industrial (including refrigerating or cooling medium sold separately or otherwise for air conditioning)*.....	167,222	7,232	73,412
Refrigerating or cooling medium sold to contractors or other distributing outlets (not manufacturing air-conditioning equipment) for air-conditioning systems, when such knowledge as to the applica- tion is available.....	135,144	55,830	356,408
Air washers, including pumps and motors and control where furnished.....	30,470	51,565	75,350
Air filters (not including sales of filters used with machinery other than fans).....	24,878	16,464	17,242
Humidifiers.....	76,584	56,629	165,558
Fan Group—Total	\$ 749,222	\$ 869,680	\$ 1,365,128
Fans, including bearings, pulleys or couplings (if furnished)—			
For public and semi-public buildings.....	88,209	103,975	130,765
For general industrial uses.....	247,361	260,863	428,682
For mechanical draft.....	47,691	100,045	216,902
For jobbers' stocks and unknown uses.....	32,303	35,488	130,421
Small housed and propeller fans—			
Direct connected small housed blowers with motors and control (merchandise motors).....	132,776	110,389	146,223
Propeller fans, direct connected and belted) for ventilation only).....	162,368	191,376	229,443
Driving mechanism for general fan use (not reported above).....			
Electric motors and controllers (manufactured or jobbed).....	33,309	61,945	73,546
Steam engines (manufactured or jobbed).....	5,205	5,599	9,146
Unit Heater Group—Total	\$ 648,744	\$ 1,038,541	\$ 873,246
Industrial Type Unit Heaters, including heating element and motors where furnished—			
Equipped with blower-type (centrifugal) fans.....	100,453	141,168	144,504
Equipped with propeller-type fans.....	311,711	561,066	349,549
School Room Type Unit Heaters, including heating element and motors and control where furnished..	135,261	143,747	122,057
Indirect Heating Surface (not including unit heater surface).....			
Steel pipe coil type (manufactured or jobbed)....	....	455	10,675
Cast iron type (manufactured or jobbed).....	3,847	5,997	6,292
Copper or aluminum type (manufactured or jobbed)	97,472	186,108	240,169

*Includes incidental equipment, such as temperature, motor, humidity, and electrical controls, dampers, outlets, etc., as are sold with each.

KOCH REFRIGERATORS
NORTH KANSAS CITY, MISSOURI

In design, in construction, in performance, this new display case is a sensation. Yet it is low in price and economical to operate. The Koch line is complete. There is a counter, a cooler, or a refrigerator that will meet every requirement. **WRITE KOCH TODAY**

There is big money in the Koch line for qualified distributors.

DOUBLE PROFITS Selling Sherer's 1938 CASE AND COOLER HEADLINERS



TYLER WELDED STEEL Refrigerators



This year, more than ever, the Tyler line is the popular line in the commercial refrigerator field. Now complete with Top Display, Double Duty, Delicatessen, Reach-In cases and Walk-In coolers. Sizes and types to take care of every prospect. Welded steel construction and other exclusive features make TYLER

THE FAST SELLING LINE

Tyler's quantity production methods have made possible a new standard of values that gives you unbeatable sales ammunition. Write now for newest literature and dealer details.

TYLER FIXTURE CORP., Dept. E, NILES, MICH.
NEW YORK OFFICE: 601 W. 20TH ST.
CHICAGO OFFICE: 1663 W. OGDEN AVE.

PELCO DEALERS

PELCO
Electric BEVERAGE
and BEVERAGE-FOOD COOLER
MAKES ITS OWN
FLOATING ICE

Send for MORE FACTS. Address Desk A-38

MANUFACTURED BY Refrigerator Division
PORTABLE ELEVATOR MFG. CO.
BLOOMINGTON, ILLINOIS, U.S.A.
Sold in Canada by UNIVERSAL COOLER CO., of Canada, Limited, Brantford, Ontario



Anti-Frost Chemical 'Paint' Is Patented

BIRMINGHAM, Ala.—A transparent, tasteless, odorless liquid which, if painted on refrigeration coils, would make defrosting of these coils unnecessary (according to claims of its inventor), has been patented by F. M. Prince, Birmingham chemist.

This liquid is designed to prevent ice or snow from accumulating on any surface, and Mr. Prince declares that its practicability as applied to refrigeration coils already has been tested. The chemical dries like paint on any surface.

In addition to its application in the refrigeration industry, the inventor expects to find a ready market for his product for use on automobiles, airplanes, and on roofing.

Mr. Prince is a member of the family of Prince Bros., Birmingham refrigeration dealership.

'Electrical Living' Essay Contest On In Canada

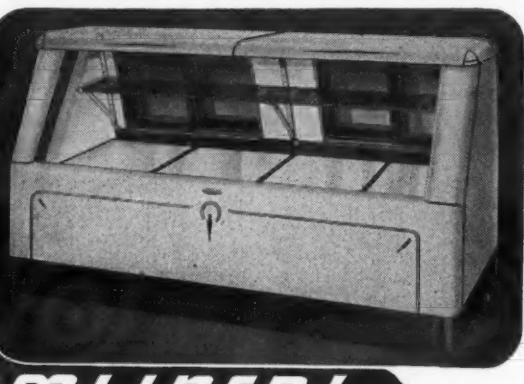
TORONTO, Ont., Canada—Canadian General Electric Co., Ltd., has announced a \$10,000 essay prize contest, designed to arouse a greater public consciousness of the happiness, comfort, and labor-saving development of modern electrical appliances and equipment.

Contestants are asked to secure official forms on which to write, in 100 words or less, why the electrical way of living appeals to them. These forms, giving detailed information on the subject, are obtainable from General Electric dealers, power companies, and electrical contractors throughout the Dominion.

The contest opened March 1 and will continue to April 16. A total of 63 prizes will be awarded, the grand prize being a certificate for \$2,500 to be applied on the purchase of electrical merchandise.

THE BUYER'S GUIDE

NEW Percival STREAMLINER!

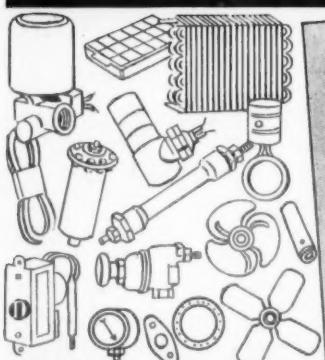


DISTRIBUTORS WANTED!

Write for details of Profit-making franchise. Complete PERCIVAL line meets every requirement of the modern food store.

**C. L. PERCIVAL COMPANY
DES MOINES . . . IOWA
51 YEARS OF SERVICE 1886-1937**

REFRIGERATION and AIR CONDITIONING PARTS*



PROMPT SERVICE

Write for
OUR LATEST CATALOG
ON YOUR LETTERHEAD
BRANCHES:
NEW YORK • CLEVELAND • ST. LOUIS

The HARRY ALTER CO., 1728 SO. MICHIGAN AVE., CHICAGO, ILL.

RANCO has THIRTY-TWO EXACT REPLACEMENTS!
That means THIRTY-TWO OPPORTUNITIES to make
more money by saving service time when replacing
Household Refrigerator Controls!

Send for Bulletin.

For Complete Export Information, Write

**Ranco Inc.,
Columbus, Ohio, USA**

SERVICE LETTERS

What Precautions Needed On Marine Units?

Melchior, Armstrong, Dessaix Co., 300 Fourth Ave., New York City Service Editor:

We have taken the liberty of addressing you for some information regarding the use of an ordinary commercial 3-hp. water-cooled unit on board of a yacht, using salt water as the cooling medium.

Looking through all your manuals in our office, we are unable to find any mention of the use of compressors for the above application. We are aware of the fact that the salt water will have some effect on the copper condenser and cylinder head, but inasmuch as in this particular case the boat is idle for a period of four months, would it not be sufficient to only dismount the condenser and clean it out thoroughly with some solution, also the cylinder heads.

Using a good filter before the pump supplying the water without the use of a water valve direct to the unit would be sufficient.

We shall appreciate any information that you can give us regarding the above, and also if it were possible to do this, if you could suggest what sort of a solution to use for cleaning out the condenser.

WALTER LEISNER

Hints For Installation and Care of Marine Condenser

Answer: It is recommended that you take this problem up directly with the manufacturer who is to supply this condensing unit.

Salt water will decompose copper tubing in time and will also attack the soldered joints normally used in condenser construction.

Some ordinary condensers have been known to stand up several years with salt water, others have become pitted or leaked at the soldered joints in a few months.

Half and half solder, that is half tin and half lead, has a very short life when in contact with salt water. Silver solder has a much greater resistance to the effect of salt water.

I am of the opinion that the majority of manufacturers supplying condensers for salt water use tubing containing a high nickel content. All joints in the condenser tubes are brazed. This construction has evidently proven very satisfactory for salt-water work.

As to cleaning the condenser, that is, removing the scale deposits from the condenser tubes, this may be done with a wire brush if the shell-and-tube type condenser is used.

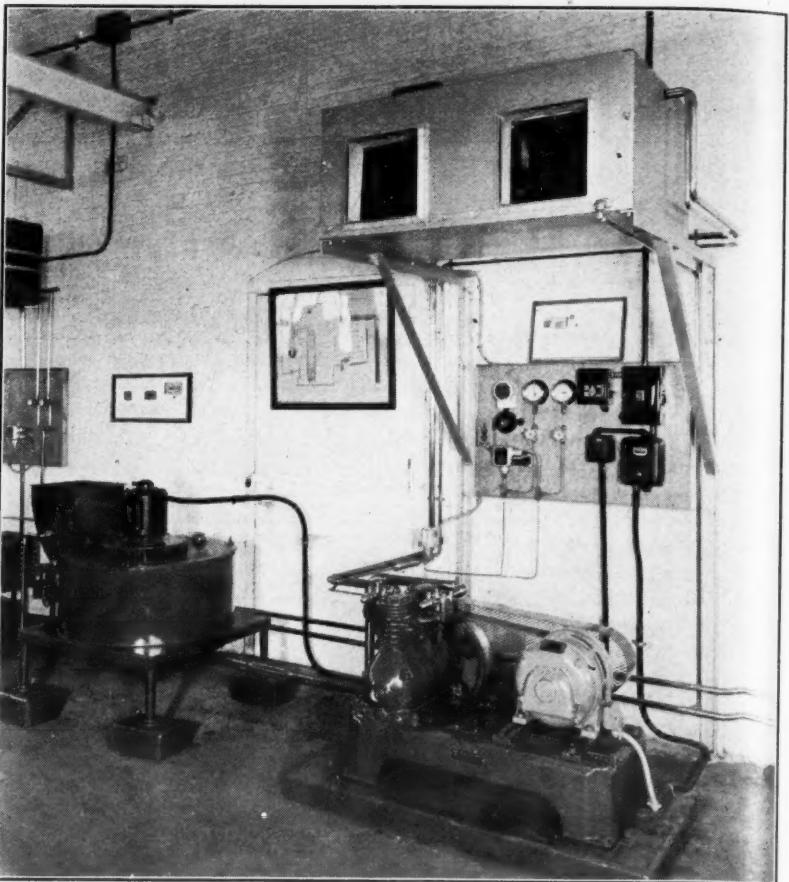
For washing the salt deposits from the walls of a shell-and-coil type condenser, or tube-within-a-tube condenser, lukewarm fresh water should be pumped through the condenser until the discharge water shows no sign of salt.

I think this will also apply to cleaning the cylinder head in case the cylinder head is water-cooled.

The above are some of the facts pertaining to the use of salt water as a cooling medium as it affects the condenser, and again I would suggest that you take this up directly with the company who is to supply the condensing unit.

K. M. NEWCUM,
Service Editor

General Refrigeration Model Installation



"Let them see it work" was the theme of the instructors in charge of the recent air-conditioning and service school held recently at the company's plant in Beloit. The operation of an air conditioner, condensing unit, hydro-cyclonic (evaporative) condenser, along with thermostat, solenoid

valve, pressure control, automatic starter, and pressure gauges (all shown in this picture) provided practical information on operating problems for the 50 distributors, salesmen, engineers, and service men who attended.

Careless Handling In Field, Allowing Moisture In System, Can Injure Freon Units

CHICAGO—Ninety-four percent of all the Westinghouse Freon-12 commercial condensing units returned to the factory as defective contain moisture, George C. Licence, of the factory service department, told those in attendance at the recent commercial applications and service school conducted here.

He advanced the opinion that the industry as a whole has been far too careless with moisture in Freon-12 and consequently has experienced considerable service difficulty because of a mistaken belief that moisture in a Freon-12 system was not harmful.

When Freon-12 was first put on the market, continued Mr. Licence, refrigeration engineers, not having any experience with the effect of moisture in Freon-12 systems, believed that the freezing effect at the expansion valve was the only ill effect the moisture would have. Until last year, Westinghouse engineers recommended two additions of anhydrous alcohol to prevent the freezing at the valve.

SLUDGE FORMATION

However, said Mr. Licence, his engineers were confronted with a copper plating condition and a sludge formation on the discharge valves on most of the Freon-12 condensing units returned for repair. Copper plating was attributed to the effect of alcohol and moisture with Freon-12.

Several discharge valve assemblies which were coated with the "gummy" substance, were sent to the chief chemist at the Westinghouse plant in East Pittsburgh, where an analysis of the cause of the sludge formation was made.

The analysis revealed that the sludge was a combination of Freon-12, oil, moisture, and heat, according to Mr. Licence. The findings revealed that the removal from the system of any one of the four contributing causes would eliminate the condition. Heat at the point of compression, the discharge valves, would be difficult to remove, hence, Westinghouse engineers decided that the complete removal of moisture by dehydration would remove the cause.

Improved methods of dehydrating the systems were immediately put into effect at the plant in East Springfield, Mass. and according to Mr. Licence, the percentage of moisture affected jobs has been materially reduced. Alcohol is not added at the factory nor recommended for use in the field.

Moisture jobs still come in to the

factory, said Mr. Licence, but the trouble is always traceable to improper dehydration methods in the field.

USE CALCIUM OXIDE

Westinghouse engineers recommend calcium oxide as a drying agent. The reason, advanced by Mr. Licence, is that the calcium oxide dryer will sweat when the agent is saturated, hence giving visible evidence that the dryer should be changed.

Calcium chloride, because it will dissolve and go through the system, should never be used.

L. K. Baxter, Westinghouse service manager, pointed out that improper refilling of Freon-12 cylinders was the principal cause of moisture trouble in the field. Refilling of old moisture laden cylinders with Freon-12 allows the moisture to be carried into the system.

Confirming Mr. Baxter's statement regarding the improper refilling of old cylinders, Mr. Licence, stated that Westinghouse has no record of having received a wet cylinder of Freon-12 direct from Kinetic Chemicals Co. Hence, they conclude that much of the moisture trouble could be avoided by using only cylinders filled by the manufacturer.

SUPPLIES • PARTS • TOOLS
Refrigeration — Air Conditioning
Oil Burner — Stoker
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VINCENT BRASS & COPPER CO.
100 North Second St., Minneapolis, Minn.

You Can Install
SPORLAN
THERMOSTATIC EXPANSION VALVES
with Confidence!

Compressors
M&E EST. 1866
MERCHANT & EVANS CO.
Phila., Pa., U.S.A. Plant at Lancaster, Pa.

Major Appliances

Ten 'Saving' Recipes Get 22,000 Range Prospects In Drive

WASHINGTON, D. C.—Ten recipes presenting new ways to save through electric cooking formed the basis of an extensive range campaign conducted recently by the Electric Institute of Washington.

The recipes first were presented in a series of direct-mailing pieces sent to a list of about 22,000 prospects over a period of six weeks.

In the next step, the same material was incorporated in newspaper advertising, and the Institute's daily radio program was used to bring the messages directly to the housewives in the metropolitan area.

The entire campaign then was summarized in a booklet featuring the 10 recipes. The booklet is distributed at cooking schools, demonstrations, women's club meetings, and similar gatherings.

To attract attention, each recipe was printed under an unusual headline. The 10 headings were: "You can bake potatoes in a saucepan;" "You can cook spaghetti without boiling water;" "You can melt chocolate without a double boiler;" "You can roast a turkey in an uncovered pan;" "You can cook onions and potatoes in the same pan;" "You can cook vegetables with a half cup of water;" "You can cook pie filling without a double boiler;" "You can cook dried fruits without soaking;" "You can cook cereal overnight at low cost;" "You can cook eggs with a tablespoon of water."

Tysser Chief Engineer On Crosley's Radios

CINCINNATI—Appointment of Howard J. Tysser as chief engineer of the household radio division of Crosley Radio Corp., and of Clarence G. Felix as chief engineer of the automotive radio division, has been announced by Powel Crosley, III, vice president in charge of the company's radio divisions.

Mr. Tysser has been with Crosley since 1933, and until recently was chief engineer of the Kokomo division of the company. He entered the radio field in 1916 as laboratory assistant for American Radio & Research Corp., Medford Hillside, Mass., later known as the Amrad Corp.

Later he was with King Hinnens Radio Corp., Buffalo; Power Radio Corp., Medford, Mass.; Magnavox Co., Fort Wayne, Ind., and Pilot Radio & Tube Corp., Lawrence, Mass. and Long Island City, N. Y.

Mr. Felix has been with the company since 1927, when he started as engineer in the measurements laboratory. From 1928 to 1930, he was in charge of all design of laboratory equipment. Later he was a development engineer on household and auto radios, and since 1933 has been in charge of automobile radio development.

Gift Bath Towels Bring Crowds To Rochester Home Laundry Show

ROCHESTER, N. Y.—Electrical Association of Rochester staged a home laundry show here recently in which 12 distributors of washing machines and ironing machines participated.

One of the features of the show was the presenting of a bath towel to each of the first 1,000 housewives who witnessed a demonstration of either a washer or ironer at any of the exhibits. The gift towels proved very effective as a means of obtaining names of prospects.

BUNDY TUBING
Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: $\frac{1}{8}$ " to $\frac{1}{2}$ " O.D.
BUNDY TUBING CO., DETROIT

Direct Advertising



W. C. JONES



LYNN A. SAYLOR

Hotpoint Names Divisional Advertising Managers

CHICAGO—Appointment of divisional advertising men to direct the advertising and sales promotion for the various Hotpoint major appliance lines has been announced by W. A. Grove, advertising and sales promotion manager of Edison General Appliance Co., Inc.

Lynn A. Saylor, a member of the Hotpoint advertising department for the past nine years, will direct the advertising of the Hotpoint electric range and commercial cooking equipment. A graduate of the University of Iowa in 1923, Mr. Saylor joined the Hotpoint organization after serving in the classified department of the Chicago Herald & Examiner, and in the catalog department of Montgomery Ward & Co.

Advertising of the Hotpoint refrigerator will be directed by W. C. Jones. Mr. Jones is a graduate of Dennison university. He joined the sales promotion department of General Electric Co. in 1930, and later became sales promotion manager of Keystone Appliances, Harrisburg, Pa. He joined the Hotpoint organization in 1937.

Hotpoint water heater and kitchen sanitation advertising, including the new Hotpoint electric sink, dishwasher and kitchen waste unit, will be handled by Norman D. Eckliff. Mr. Eckliff is a graduate of the University of Michigan, and has had extensive experience with the Chicago Tribune and as assistant advertising manager of the Walgreen Co.

He also has served with such advertising agencies as Campbell & Ewald Co., Blackett, Sample & Hummert, and H. W. Kastor & Son. He has been a member of the advertising department of Edison General Electric Appliance Co. for the past two years.

Lewis M. Russell will direct the advertising and sales promotion of Hotpoint washers and ironers. Mr. Russell is a graduate of the University of Illinois, and has served with Blackett, Sample & Hummert, Chicago advertising agency, and as assistant advertising manager of Utilities Power and Light Corp.

R. F. Blaine will direct the adver-

tising of the Hotpoint kitchen. Mr. Blaine is a graduate of the University of Illinois, and studied for one year at the University of Gottingen, Gottingen, Germany. After a brief period with United Airlines, he joined the Hotpoint organization in 1935 as sales representative. He was transferred to the advertising department in 1937.

Kelvinator Ironers Stress Comfort, Convenience

DETROIT—Four models designed for greater convenience, efficiency, and operating economy are in Kelvinator's line of electric ironers for 1938, announces V. J. McIntyre, sales manager of home laundry equipment.

Three models are all-electric and fully automatic, and are equipped with tables of heavy gauged pressed steel of modern design, at which the housewife may sit comfortably while she is ironing.

End panels are closed, and a fold-down shelf can be attached to either end of the table for extra space. The hard-chrome plate shoe can be tilted back easily, proving a convenient working area for sponging and removing spots from garments.

A selective knee lever and finger-touch button control the shoe pressure. Mechanism is fully enclosed on all models.

Model 99A, leader of the line, is completely encased in a pressed steel cabinet with acid-resisting porcelain table top, hinged with a balancing arm which permits the top to swing back and down, so that heat is not reflected in the face of the operator.

Rest of the ironer is finished in baked white enamel. Thermostats located at each end of the shoe mechanism control the heat, and a locking device on the rubber casters prevents the ironer from moving when in use.

Inexperienced Salesman Cooks For Dealers

PORTRLAND, Ore.—Cooking of complete turkey dinners in new Crosley "Mystic Oven" gas ranges featured a meeting staged here recently by North Coast Electric Co., Crosley distributor in Portland and Seattle, for dealers in the Portland territory.

The meals were prepared by Ray Mello of the distributor's sales staff, who, it is reported, knew practically nothing about the art of cooking.

Four turkeys were cooked, one for 10 hours, one for eight hours, one for seven hours, and the fourth in the regular oven simultaneously with those in the Mystic Oven.

Participating in the meeting were P. W. Balkowsky, Crosley west coast manager; Lee Bird, service manager from the Crosley factory; V. M. Miller, manager of the distributorship; and Frank Paulson, sales manager.

Chicago Utility Adds 2 New Range Lines

CHICAGO—Commonwealth Edison Co. has added two new electric range lines—Frigidaire and L & H—to the lines of those products which it sells. Models of these two units, and of Hotpoint and Westinghouse electric ranges, are being displayed in Commonwealth Edison Electric Shops.

Pittsburgh Distributor's Sponsorship Of Cooking Schools For Dealers Gets Quick Results

PITTSBURGH—Ochiltree Electric Co., local General Electric appliance distributor, associated G-E dealers, and the West Penn companies, electric utilities, are cooperating to present a series of cooking schools to educate the buying public and promote sales of electric ranges.

Under the plan, the distributor and the dealers conduct the schools, and the West Penn companies provide the services of trained home economics representatives and dealer promotion representatives.

The West Penn companies are West Penn Electric Co. and West Penn Power Co.

The utilities' home economics representatives conduct the cooking lecture-demonstrations at the schools, and the dealer promotion agents assist in the necessary arrangements.

Of the 35 schools scheduled, 13 already have been held, and im-

mediate results have been gratifying as to actual sales and public interest.

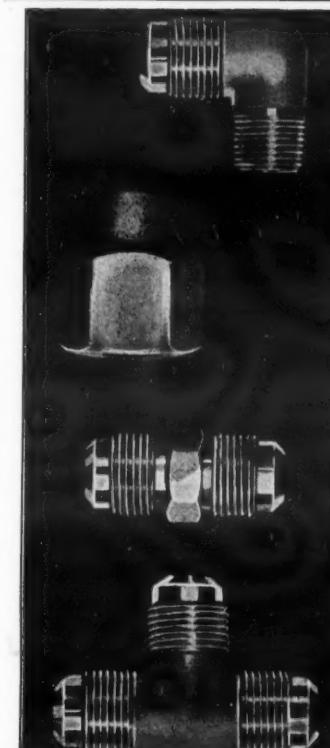
Charleroi Electric Co., Charleroi, Pa., sold four ranges, an ironer, and a radio at its cooking school, and clinched a prospect for an all-electric kitchen.

Swan's G-E Appliance Co., Connellsville, Pa., sold four ranges immediately after its cooking school, made four other sales in the following two weeks, and secured a large list of prospects' names.

Majority of the schools have produced at least two immediate range sales plus a number of prospects.

Total attendance at the first 13 schools was 917. H. J. Kuhns Co. of Vandergrift had the largest attendance of any one dealer, its school attracting 271 persons. Williams & Kaul of Freeport invited the high school home economics teacher and her class to its cooking school.

THE BUYER'S GUIDE



Seepage-Proof FITTINGS

"Built Right to Stay Tight"

Every style and size of forged flared tube fitting for the refrigeration industry is available from standard stock at Commonwealth.

Thousands of semi-standard patterns enable us to quickly furnish any desired variation in pipe and tube ends.

Special fittings made to order.

Commonwealth fittings are correctly designed, carefully machined, and tube seats are protected in shipping.

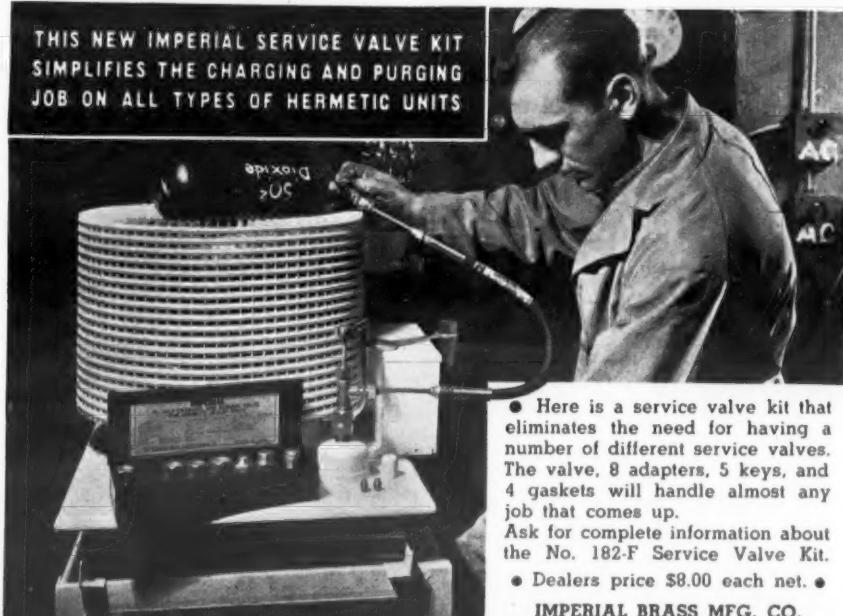
25 years of service to the industry.

COMMONWEALTH BRASS CORPORATION

Commonwealth at Grand Trunk R. R.

DETROIT, MICH.

THIS NEW IMPERIAL SERVICE VALVE KIT
SIMPLIFIES THE CHARGING AND PURGING
JOB ON ALL TYPES OF HERMETIC UNITS

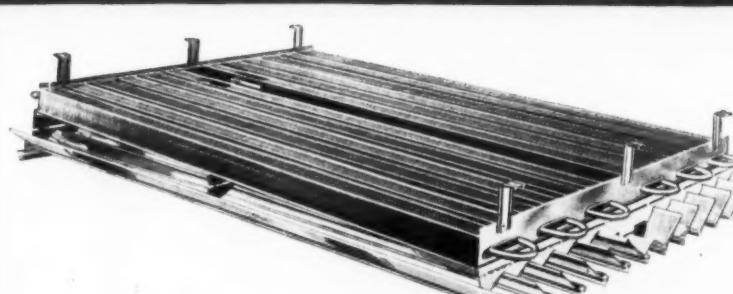


• Here is a service valve kit that eliminates the need for having a number of different service valves. The valve, 8 adapters, 5 keys, and 4 gaskets will handle almost any job that comes up. Ask for complete information about the No. 182-F Service Valve Kit. • Dealers price \$8.00 each net. • IMPERIAL BRASS MFG. CO. 565 S. Racine Ave., Chicago, Ill.

IMPERIAL Air Conditioning and Refrigeration Products

VALVES • FITTINGS • TOOLS • CHARGING LINES • FLOATS • STRAINERS • DEHYDRATORS

BUY PEERLESS FOR PERFORMANCE



PEERLESS of AMERICA, Inc.

ESTABLISHED IN 1912 AS THE PEERLESS ICE MACHINE CO.
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PEERLESS JOBBERS IN ALL PRINCIPAL CITIES

Refrigeration Engineers

Agree

PEERLESS FLASH COOLER

is the A-1 Convection Cooler

There's no argument about the performance of this unit. You can recommend it unconditionally to customers who will have nothing but the best. The Flash Cooler is a COMPLETE lowside—hangs a wide, shallow coil—and the exclusive full opening, multi-louvered, polished aluminum drip pan. It delivers a large volume of properly cooled high humidity air, and maintains correct circulation. The Flash Cooler is a fast selling, clean profit unit that will bring you more sales, and better satisfied customers.

Home Cream Whipper Operates In Same Way As Beverage Carbonator

DETROIT—A cream whipper operating on the same principle as the common type of home beverage carbonator, only using nitrous oxide instead of carbon dioxide, has been introduced by AiRite Mfg. Corp. and will be merchandised through AiRite Sales Corp.

The whipper, which retails for \$12.50, is said to be capable of turning a half pint of 20% cream into a full quart of well whipped cream. A cartridge of nitrous oxide is screwed into the top of the container until it is punctured, releasing gas under pressure and injecting it into the cream in the container. The cream is whipped by the action of the gas alone, according to the description offered by officials of the AiRite company.

By pressing a valve on top of the container, whipped cream may be shot out through a spout in any quantity desired.

Designed for either home or food store, this cream whipper may be placed in a refrigerator when full. In this way the cream will keep for several days, and may be used as desired.

The manufacturer suggests that the whipper might be used by refrigerator dealers as a gift offer to purchasers.

New Johnson Catalog Provides Data On Bearing Service

NEW CASTLE, Pa.—Just issued by Johnson Bronze Co. is a 64-page catalog which contains complete information on the bearing service offered by the company. The catalog is known as No. 360.

New and simplified catalog indexing features are said to facilitate selection of bearing types and sizes. Information also is included on bronze bearing alloys and tolerance, and a large range of sizes is listed in the catalog.

The catalog is completely illustrated, and lists Johnson general purpose bearings in 800 stock sizes, more than 300 sizes of Johnson "Universal" bronze cored and solid bars, more than 200 sizes of electric motor service bearings, lead-base and tin-base babbitt, and cast bronze graphited bearings and plug-type bearings.

Other features of the catalog are special sections on oil grooving, flanged bearings and bushings, a decimal equivalent chart, and a listing of Johnson offices and warehouses.

Also outlined is the company's consulting service, made available through its engineers and metallurgists, to dealers and service men in the refrigeration industry in solving bearing problems.

QUESTIONS

Wants Jelly To Replace Ice Cream Cabinet Brine

No. 3193 (Manufacturer, New York)—"We are in the market for a jelly substance to replace the alcohol brine or calcium brine in ice cream cabinets. Can you tell us who manufactures such a product?"

Answer: The following companies are manufacturers of a jelly substance which may be used to replace the alcohol brine or calcium brine in ice cream cabinets:

Kold-Hold Mfg. Co., Lansing, Mich.
Savage Arms Corp., Utica, N. Y.
Dole Refrigerating Co.,
208 N. Clinton St., Chicago, Ill.

Seeks Buyer Of Used Equipment

No. 3194 (Distributor, New York)—"We would appreciate your sending to us the names and addresses of companies which we understand operate in the city of New York, going around the country purchasing used refrigeration equipment, both household and commercial. If you have any such information or listing we will certainly appreciate receiving it."

Answer: We believe the company which you mean is the Federal Refrigerator Corp., 57 E. 25th St., New York City. We understand they are purchasing a considerable amount of used refrigeration equipment.

Specifications Book Gives Data On Old Models

No. 3195 (Exporter, New York)—"Do you have a list of the more prominent electric refrigerators (domestic) showing model number and the corresponding years of their introduction to be used in connection with exporting rebuilt units. Take as an illustration an L5P Kelvinator. I would like to know in what year it was brought out?"

Answer: Model L-5P Kelvinator was manufactured in 1928. Model J-12, single-cylinder compressor used in this model, is of the reciprocating type, having a bore of $1\frac{1}{2}$ inches and a stroke of $1\frac{1}{2}$ inches. The compressor is operated at 350 r.p.m. by a $\frac{1}{2}$ -hp. repulsion-induction motor. The belt circumference is $36\frac{1}{4}$ inches, width is $1\frac{1}{2}$ inch.

The system was factory charged with 2 lbs. of SO_2 and 12 oz. of oil.

The refrigerator weighs 250 lbs. and is rated at 4.34 cu. ft., and has a lacquer interior.

Exterior dimensions of the cabinet are $55 \times 23 \times 22$ inches. Interior dimensions are $25 \times 20 \times 16$ inches. The shelf area is 6.54 sq. ft. The cabinet has one door.

The evaporator is the brine tank type using an automatic expansion valve. Two ice cube trays are used. A thermostat is used to control the refrigerator temperature.

The above information was taken from the 1936 Refrigeration & Air Conditioning Specifications Book. Conveniently tabulated in the 512 pages of the 1936 Specifications Book are similar data on all models, all makes, and all years of household refrigerators, commercial refrigeration compressors, and air-conditioning systems.

The 1936 Specifications Book may be obtained from Business News Publishing Co., 5229 Cass Ave., for \$1.00 if accompanied with an order for other of our books amounting to \$10.00 or more. Single copies sell for \$3.00. Books are postpaid in the United States and Pan-American Postal Union Countries. For shipment to foreign countries add 50 cents to the total order for postage.

1937 Air-Conditioning Surveys In the News

No. 3196 (Manufacturer, Illinois)—"I have just run across a copy of your booklet called 'Air Conditioning Surveys.' I have found it very complete and interesting."

"Please send us by return mail the latest copy of this book."

"If the 1937 figures are available, please let us know when they will be issued in booklet form so that we may obtain a copy when they are released."

Answer: The booklet "Air Conditioning Surveys" is the latest edition of this booklet published. Summaries of air-conditioning installations made in major cities through the year 1937 were published in the Jan. 26 issue of AIR CONDITIONING & REFRIGERATION NEWS. More complete breakdowns of the installations made in 1937, giving the name of the makes installed, have been published in subsequent issues.

Manufacturers Of Portable Conditioners

No. 3197 (Distributor, Illinois)—"Kindly supply us with names of reputable manufacturers that you may know of who manufacture portable air-conditioning units."

"If there are any of these you happen to know who are particularly looking for a distributor, kindly so indicate."

Answer: For manufacturers of portable air-conditioning units, you might contact the following companies:

Air Devices Corp., Meriden, Conn.

Airtemp, Inc., Dayton, Ohio

Carrier Corp., Syracuse, N. Y.

Climax Machinery Co., 121 E. Morris St., Indianapolis, Ind.

Corozone Air Conditioning Corp., 1110 Henna Bldg., Cleveland, Ohio

De La Vergne Engine Co., Paschall P.O., Philadelphia, Pa.

Delco-Frigidaire Division, General Motors Sales Corp., Dayton, Ohio

Fairbanks, Morse & Co., 900 S. Wabash St., Chicago, Ill.

General Electric Co., 5 Lawrence St., Bloomfield, N. J.

General Refrigeration Corp., Beloit, Wis.

Governair Corp., 603 W. Main St., Oklahoma City, Okla.

Herman Nelson Corp., 1824 Third Ave., Moline, Ill.

Ilg Electric Ventilating Co., 2850 W. Crawford Ave., Chicago, Ill.

Kauffman Air Conditioning Co., 4336 W. Pine Blvd., St. Louis, Mo.

Kelvinator Div., Nash-Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.

Sam Kennard, Inc., 3333 Market St., St. Louis, Mo.

Mayflower-Lewis Corp., Duluth & E. Seventh St., St. Paul, Minn.

Norge Div., Borg-Warner Corp., 670 E. Woodbridge, Detroit, Mich.

Pacific Mfg. Corp., 4223 W. Lake St., Chicago, Ill.

Servel, Inc., Electric Refrigeration & Air Conditioning Division, Evansville, Ind.

Westinghouse Electric & Mfg. Co., Mansfield, Ohio

York Ice Machinery Corp., 5401 Roosevelt Blvd., York, Pa.

These manufacturers offer floor-type room coolers and for window-type room coolers, we would suggest that you contact the following:

Air Devices Corp., Meriden, Conn.

Pleasantaire Corp., 1623 Connecticut Ave., Washington, D. C.

Mayflower-Lewis, Inc., Duluth & E. Seventh St., St. Paul, Minn.

Westinghouse Electric & Mfg. Co., Mansfield, Ohio

Johnson Motors, Galesburg, Ill.

You will find all manufacturers of air-conditioning and refrigeration equipment listed under product classifications in the new 1938 Refrigeration & Air Conditioning Directory No. D-1. This Directory is an entirely new book which has just come off the press and which lists all known manufacturers operating in the national market. Copies are available through the subscription department at \$1.00 per copy.

Answer: See below.

Question: We are contemplating accepting an agency for air-conditioning units covering a portion of the states of New York and Pennsylvania.

"We would appreciate it if you would advise us whether there are any state or local laws in these two states whereby the connection of water-cooled units to local sewers is prohibited. If so, what other means of connection can be resorted to?"

Answer: We cannot advise you as to whether or not any cities in the states of New York and Pennsylvania have enacted ordinances prohibiting the connection of water-cooled units to sewers.

We doubt very much if such ordinances have been enacted, for while there has been some talk about the subject, we have not heard of any cities taking definite action.

Manufacturer Of Vibrator Absorber

No. 3199 (Dealer, Montana)—"Please give us the name of the manufacturer who makes the vibrator absorber illustrated on page 27 of your AIR CONDITIONING & REFRIGERATION NEWS of Nov. 3, 1937."

Answer:

Chicago Metal Hose Co., 1315 S. Third Ave., Maywood, Ill.

Odor Controller For Air Conditioning

No. 3200 (Engineering Firm, Palestine)—"As they bear directly upon problems we are facing now, we read with interest your articles on odour control in air-conditioning installations in your issue of Aug. 11, 1937, pages 16 and 17."

"About three years ago one of the firms now incorporated in our present company erected an air-conditioning installation in a local hospital, using Fairbanks-Morse units, and within the past year we installed a Frigidaire V3 air-conditioning unit in one of our offices."

"In both of these installations we have been faced with the odour problem, which we have not been able to combat successfully, and this problem is one for which we must have a solution before the market which undoubtedly exists for this type of equipment in this hot climate can be developed to any great extent."

"We would be extremely grateful if you took the trouble to pass copies of this letter on to firms engaged in manufacturing equipment for the removal of odours in air-conditioning installations, and ask them to send us all available data regarding their equipment, including catalogues, price lists, etc. Any other information you can pass on to us in this regard which you think will be of any use to us will be greatly appreciated."

Answer: Companies making equipment for odor control in air-conditioning systems are:

Betz Corp., Betz Bldg., Hammond, Ind.

Consolidated Air Conditioning Corp., 114 E. 32nd St., New York, N. Y.

Restrictions On Sewer Connections?

No. 3201 (Dealer, New York)—"We are contemplating accepting an agency for air-conditioning units covering a portion of the states of New York and Pennsylvania."

"We would appreciate it if you would advise us whether there are any state or local laws in these two states whereby the connection of water-cooled units to local sewers is prohibited. If so, what other means of connection can be resorted to?"

Answer: We cannot advise you as to whether or not any cities in the states of New York and Pennsylvania have enacted ordinances prohibiting the connection of water-cooled units to sewers.

We doubt very much if such ordinances have been enacted, for while there has been some talk about the subject, we have not heard of any cities taking definite action.

They Want To Know About a 'Blue Book'

No. 3202 (Distributor, Montana)—"In the Jan. 19 issue of your periodical there appeared an article having reference to the Federal Refrigerator Corp. issuing a trade-in 'Blue Book' for household refrigerators. Will you please advise us if this can be purchased, and the price?"

Answer: See below.

No. 3203 (Dealer, Indiana)—"As subscribers to AIR CONDITIONING & REFRIGERATION NEWS, we are writing you for the address of Federal Refrigerator Corp."

"An article in the Jan. 19 issue of AIR CONDITIONING NEWS states that this company has prepared a trade-in appraisal 'blue book,' which we would like to have the price on. A letter which we addressed this company at New York City brought no reply and we would like to have their correct address if you can furnish it."

Answer: See below.

No. 3204 (Dealer, Ohio)—"We are interested in obtaining the refrigerator trade-in appraisal 'blue book,' prepared by the Federal Refrigerator Corp. We would thank you to furnish the address of the Federal Refrigerator Corp., or else forward this letter to them."

Answer: Write to the Federal Refrigerator Corp., at 57 E. 25th St., New York City for information on their "Blue Book" on trade-in prices for household electric refrigerators.

THE BUYER'S GUIDE

THE NEW 1938 C-B KOLD-O-MATIC

Display Cases & Refrigerators
Fulfill Constantly Increasing Demands For
→ MORE DISPLAY
→ MORE EYE APPEAL
→ PROPER TEMPERATURE
→ PROPER HUMIDITY
→ PROVEN CONSTRUCTION
→ PROVEN QUALITY

EXCLUSIVE TERRITORIES AVAILABLE FOR QUALIFIED DISTRIBUTORS

THE CINCINNATI BUTCHERS SUPPLY CORPORATION
CINCINNATI, OHIO

New As Tomorrow

and just what the live distributor has been waiting for.

A Reach-In of lifetime 18-8 Enduro Stainless Steel.

A variety of models and sizes.

Style—Quality—Beauty—Endurance.

An article in demand by the quality buyer.

An Amazingly low price.

A worth-while direct factory discount.

Write

BROMANN BROS., Inc.
Fulton & Peoria Sts. Chicago, Illinois

GO TO Gilmer

Service More Units • Make More Money

Sell the belt that fits the job

Jobbers everywhere

L. H. GILMER CO., Tacony, Philadelphia

"THE OLDEST FIRM OF RUBBER FABRIC BELT SPECIALISTS"



120-page Catalog

Pocket Size—Fully Indexed

Makes it easy to

find the belt you want

Get copy today

Rapid, Complete, Automatic Circulation

Wilson ZERO-FLOW

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, \$2.00; additional words four cents each. Three consecutive insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS WANTED

SERVICEMAN DESIRES position with wide-awake refrigerator or appliance company. Four years' experience commercial and domestic refrigeration; stockers; other electrical and gas appliances. Three years' education University of Illinois; refrigeration course Utilities Engineering Institute. Factory training Norge and Curtis. Age 28, married. Excellent references. Box 1025, Air Conditioning & Refrigeration News.

FRANCHISES AVAILABLE

DISTRIBUTOR WANTED — Exclusive franchise open for rock wool insulation applicator and distributor. Both new construction and existing residential fields. Complete sales promotion materials provided. Minimum investment of \$2,000.00 necessary for stock and equipment. For details write ROCK PRODUCTS COMPANY, 150 Fourth Avenue, North, Nashville, Tennessee, giving details about your company.

COMPLETE LINE of refrigerator display cases, walk-in coolers, and refrigerators for meat markets, grocers, restaurants, etc. Sell with Ehrlich line of compressors, or with any other line of machines. Attractive discounts, also liberal financing arrangements to help sell. 69 years in business. Write for full information and catalog. EHRLICH REFRIGERATOR MFG. CO., St. Joseph, Mo.

EQUIPMENT WANTED

WE WANT $\frac{1}{2}$, 1 & $1\frac{1}{2}$ H.P. air cooled condensers. Must be copper tube, aluminum or copper fins. Soldered fins or tin dipped coil preferred. BATTLE CREEK AIR CONDITIONING AND REFRIGERATION CO., 205 W. Michigan Ave., Battle Creek, Mich.

EQUIPMENT FOR SALE

GUARANTEED REBUILT and new parts — Bargains! Frigidaire EF, EE, F, EAE compressor body with flywheel and valves \$8.00—exchange, \$4.00. A, AA120, A125—\$15.00—exchange, \$5.00. Float valves, calibrated, with new needle and seat—\$2.50, exchange, \$1.00. Complete low side, floated coil, float and 2 ice cube trays, "as is", \$5.00. New chromium hinges for Frigidaire No. 86778, \$1.50. New latch to match above, \$1.75. Write for our list of bargain prices. LANDLORD'S REFRIGERATION SERVICE, 310 East 149th Street, Bronx, N. Y.

COMPRESSORS (NEW) methyl chloride 100 twin cylinder 150 single cylinder, $1\frac{1}{2}$ bore $1\frac{1}{2}$ stroke. Ideal for domestic and small commercial installations. Adaptable also as air compressors for small units. Desire to sell entire lot but will divide. Box 1026, Air Conditioning & Refrigeration News.

REPAIR SERVICE

CONTROLS REPAIRED. You profit by our ten years' experience, trained personnel, and precision equipment. Each control accurately calibrated and re-finished. Perfect work, prompt service, reliable guarantee. If it contains a bellows, Halextric can repair it. Try Warrenol for stuck compressors. Samples available. HALEXTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

DOMESTIC CONTROLS repaired. Ranco pencil types \$1.75. General Electric, Cutler-Hammer, Tag, Penn, Ranco box types \$2.00. Bishop Babcock, Majestic, Penn magnetic types \$2.50. All calibrated to factory specifications. We pay return postage. UNITED SPEEDOMETER REPAIR COMPANY, 436 West 57th Street, New York City.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

For Information on Motors
FOR ALL TYPES OF
Air Conditioning and
Refrigeration Equipment
WRITE TO

Wagner Electric Corporation
5411 PLYMOUTH AVE. ST. LOUIS MO.

PROFIT-MAKER DELUXE!

There's no competition in the high-quality class for this 1938 ALLISON AIR CONDITIONER! Read the features below and be amazed at the \$260 list price. Exceptionally attractive discounts. Write or wire for details today!

Allison Air-Conditioner Features

- Self-Contained Air Conditioning Unit
- Vibration Free
- 1/2 Ton Capacity
- Water Cooled
- Direct Expansion
- Heat Construction
- John-Manville Insulation
- Genuine Walnut Cabinet
- Coils, Filters, De-Humidifiers

W. D. ALLISON COMPANY, Indianapolis, Ind.

Pennsylvania Leads In January Tabulation Of Sales-By-States

States and Territories	Quantity Household Low Sides
Alabama	940
Arizona	639
Arkansas	510
California	7,549
Colorado	765
Connecticut	1,299
Delaware	249
District of Columbia	1,039
Florida	1,615
Georgia	1,570
Idaho	482
Illinois	8,593
Indiana	2,748
Iowa	1,566
Kansas	941
Kentucky	1,082
Louisiana	1,538
Maine	323
Maryland	918
Massachusetts	3,207
Michigan	3,657
Minnesota	3,096
Mississippi	517
Missouri	3,212
Montana	302
Nebraska	702
Nevada	131
New Hampshire	182
New Jersey	2,403
New Mexico	122
New York	8,928
North Carolina	2,080
North Dakota	118
Ohio	5,957
Oklahoma	1,438
Oregon	1,456
Pennsylvania	9,699
Rhode Island	430
South Carolina	863
South Dakota	270
Tennessee	1,782
Texas	4,296
Utah	805
Vermont	209
Virginia	1,255
Washington	2,919
West Virginia	1,236
Wisconsin	2,091
Wyoming	92
Total United States	97,641
Canada	2,341
Other Foreign (Including U. S. Possessions)	6,880
Total for World	106,862

Nema Makes Revision Of 1937 Summary Of State Sales

Household Section of the Refrigeration Division of National Electrical Manufacturers Association (Nema) has revised its summary of sales-by-states from manufacturers to distributing outlets. States for which changes have been made, the revised figure, and the change from the previous summary, are given in the table below.

Household Low Sides	Change from Original
Arizona	+14.6%
California	+ .8%
Connecticut	+ 4.9%
Delaware	+ 9.9%
Florida	+ 2.6%
Illinois	- 2.4%
Indiana	+ 4.6%
Massachusetts	- 6.5%
Michigan	+ 1.5%
Missouri	- 1.9%
New Jersey	+ 6.3%
New York	+ .8%
Ohio	+ 1.3%
Oregon	+ 3.3%
Pennsylvania	- 4.6%
Rhode Island	+ 4.7%
Texas	+ .7%
Washington	- 4.6%
West Virginia	+ 3.1%

Barber Sees Chance Of '38 Unit Sales Beating '37

EVANSVILLE, Ind. — Prediction that the refrigerator industry this year will match 1937 in sales, with a strong possibility of an increase, was made by Howard E. Barber, division manager of major electrical appliances for Montgomery Ward & Co., Chicago, at a meeting here of store managers and appliance department heads from six states.

Mr. Barber pointed out that the refrigerator market is only 38 to 40% saturated, leaving much new sales territory. Although washing machines, ironers, and vacuum cleaners have reached a somewhat higher saturation point, he believes sales prospects for these appliances to be almost as bright.

Minneapolis-St. Paul Trade War Reaches A Serious Stage

MINNEAPOLIS — Refrigeration and home appliance dealers in the Twin Cities stand to lose many additional sales opportunities unless the current Minneapolis-St. Paul merchandise "war" is settled by some sort of truce.

The "war" was brought on by an ordinance passed by the St. Paul city council, requiring merchants to have a place of business in the city in order to make deliveries within the St. Paul city limits.

Retaliating, the Minneapolis council in a unanimous resolution notified the St. Paul city fathers that "if by legislation you intend to prohibit Minneapolis merchants from delivering merchandise in St. Paul, then the Minneapolis city council will be forced to take similar action regarding St. Paul merchants doing business in Minneapolis."

The "action" taken by the Minneapolis council was the arrest of a St. Paul coal dealer for making deliveries in Minneapolis. Then the Minneapolis park board turned down a low bid from a St. Paul firm, in favor of one from a Minneapolis firm which was considerably higher.

Now the St. Paul council is making overtures to the Minneapolis lawmakers in an effort to have the situation reconsidered. Appliance dealers in both cities are hoping for an early ending of the inter-city strife.

Westinghouse Changes Industrial Dept. Setup

EAST PITTSBURGH, Pa. — To meet the changing conditions in industrial markets, Westinghouse Electric & Mfg. Co. has realigned its industrial department into three new departments, industrial, resale, and industry engineering.

The new industrial department has a staff of field-trained sales engineers to serve the electrification of industries such as iron and steel, mining, chemical, petroleum, and public works. C. B. Stainback, formerly assistant manager, will be manager.

Newly formed resale department will promote the use of company products among machinery manufacturers and other secondary distribution channels such as industrial agents, jobbers, contractors, etc. The department will be divided into three sections: machinery electrification, appliance electrification, and construction.

As manager of the appliance electrification section, J. M. Staples heads a new section responsible for the household, office, and store appliance manufacturers' industries. He has been with Westinghouse since 1927, both with Westinghouse Supply Co. and the industrial sales department.

L. F. A. Mitchell, manager of the construction section, will be responsible for general contractors, electrical wiring companies, and heating, ventilating, and other contractors. He served in this same capacity in the former industrial department.

W. D. Turnbull, manager of the machinery electrification section, will head the development and handling of company business with machinery manufacturers, the same responsibilities he held under the former industrial department.

The industry engineering department will provide a corps of engineers experienced in electrical problems of the several industries. The men also will be available for consultation and development work. C. A. Powell will be manager of the new department.

Harry Terry, Sales Adviser, Has New Offices

CHICAGO—Harry Terry, advertising and sales economist, has moved to new offices at 8 South Michigan Ave. here from his former location at 360 North Michigan Ave. For 10 years a Cramer-Krasseit advertising agency vice president, Mr. Terry since 1937 has been making sales and market studies for advertising agencies and advertisers, as a help in coordinating sales and advertising plans.

New England Westinghouse Men Attend Conference

SPRINGFIELD, Mass. — Westinghouse salesmen from Connecticut, western Massachusetts, and Vermont attended a sales conference recently at Hotel Kimball here, at which the 1938 line of ranges and refrigerators was shown.

J. Edward Hall, of the local branch, was in charge of the meeting. Speakers included W. F. Rooney, L. A. MacQuarrie, J. E. Bouchard, J. S. Bradley, F. F. Ferguson, F. Davis, R. S. Buchanan, J. B. Stevenson, G. H. Rittenhouse, D. E. Lenfestey, and G. H. MacGilvray.

Taylor Electric Co. Consolidates Stores

OIL CITY, Pa.—Taylor Electric Co., handling Kelvinator refrigerators, Maytag and Blackstone washers, and Philco radios, will consolidate its stores in Oil City and nearby Franklin into one large store to be located at 18 Seneca St. here. The new store will be occupied in early spring, says Clyde Taylor, owner.

Century Electric Profit

\$327,978 In 1937

ST. LOUIS—Century Electric Co. reports net profit of \$327,978.61 for the year ended Dec. 31, 1937, after deduction for interest, depreciation, and state and federal income taxes. This is equal to 72 cents per share on 327,978 shares of the company's common stock, which has a par value of \$10 per share.

Gross profit from sales was \$1,561,665.60, the report shows. Operating profit exclusive of depreciation was \$827,583.72.

G-E Orders Drop 36% In First 2 Months

NEW YORK CITY—President Gerard Swope announced that orders received by General Electric during the first two months of 1938 amounted to \$41,348,000, compared with \$64,229,000 in the similar period last year, a decrease of 36%.

The directors declared a dividend of 30 cents per share for the first quarter, payable April 25 to stockholders of record March 18.

THE BUYER'S GUIDE

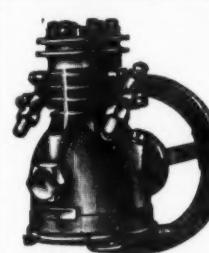
PIPE COILS

ACME GUARANTEES

All Steel Pipe Coils To Be Absolutely Free From Dirt And Free Scale

There is no additional charge for this special treatment.

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"CHIEFTAIN"

QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

All bearings diamond bored. Positive lubrication of parts by newly developed process plus forced feed lubrication in all models.

Sizes $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$ H.P.

Write for prices

TECUMSEH PRODUCTS CO.

Tecumseh, Mich.

OFFICES

New York 480 Lexington Ave.

Chicago Room 2258 La Salle-Wacker Building

Detroit Export Department 1002 Palms Bldg.

Los Angeles 122 Mariposa St.

St. Louis 577 Arcade Bldg.

NEW IDEAS FOR REFRIGERATOR DOORS

1. Locked-in, lift-out doors
2. Tightly closed overlap
3. Reduced air leakage
4. Roller bearings
5. Quiet closure
6. Lighter weight
7. Greater strength
8. Shock absorbing jambs